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OCTOBER, 1954 25c K

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BUGS**

FIRST FULL REPORT



IN THIS ISSUE

The Station Wagon —
Latest Customizing Bolt

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Secrets*



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Fits 1949-52 **\$27.95**
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A complete continental kit with bumper extensions, splash pan, tire carrier, all-metal tire cover. A stationary kit, trunk opens without moving tire. No moving parts, no rattles. A steal.



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Complete with 2 steel packed mufflers, head pipe, tail pipe, brackets.

Ford-Merc '35-48
Ford-Merc '49-54
Olds 1949-53
Stude 1951-53



\$19.95 set
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26.45

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Increases power, mileage, engine life. Deep mellow tone. Complete with headers, extensions, tail pipe, 2 steel-packed mufflers, brackets. Specify make and year.

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Kit includes full splash pan, metal tire cover, chrome hub cap, bumper extensions, all necessary parts.



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A removable chrome bonnet that clasps over and above the battery, eliminating drab, unsightly appearance. Simply remove. Specify make, year.

Custom STEERING WHEELS

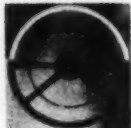
Ford 1949-54

\$19.95

Ford 1932-48

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Solid plastic, two-tone, black & white. No chip, no peel. Chrome horn ring with Ford insignia in full color on brilliant gold background.



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FULL LENGTH BULL NOSE MOLDING

1 piece FULL HOOD LENGTH, **\$3⁹⁵** installs in place of original unit. Stainless steel, polished to chrome-like luster. Specify make, year.

Chev 1949-54, Chev 1940-41, Plymouth 1948-49, Ford 1948-51, Plymouth 1941.



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"The finest single improvement in customizing a car." Heavy steel, beautiful chrome.

	Deluxe	Std.
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1953 Ford	7.50	
1949-52 Ford	19.95	\$17.50
1949-50 Merc	19.95	17.50
1951 Mercury	22.50	19.95
1953 Chevy	12.95	
1954 Chevy	14.95	

• Deluxe Model is solid, 1-pc. unit without cntr. molding.

• Standard Model is 2 pcs. with a center dress-up molding.

1949-50 Ford Grille Conversion Kit. Converts hood & grille without removing present molding. **\$7.95**



1954 FORD



1954 CHEVY



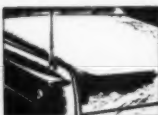
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3 Section beautifully chromed hide-away aerial, long lead wire for custom rear mounting.

Aerial with 180" wire **\$8⁹⁵**

Dual kit, (2 aeriels) 180" lead **\$12⁵⁰**

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Dechrome the easy way with Fiber-glas. As strong as steel. Easy, economical. Fills in spots, holes, rust-outs. No lead, no welding, no soldering. Kit covers 3 sq. ft. Complete with instructions.

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For trip, busy city driving. Frees right foot on hill. Clamps on. Easily removed. Fits any car. **\$2⁹⁸**



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Mounts below dash. Shows oil level quart by quart.

Fits any Ford, Chev., Ply., Buick, Merc, Pontiac, and Kaiser.

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A graphically illustrated, step-by-step breakdown of reconstruction methods, this fascinating book has everything you've wanted. Call this reliable reference the "custom builder's bible."



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In the *abc's* of **CUSTOM HOW** you'll have complete chapters, prepared by experts, on: chopping tops (both regular and hardtop), sectioning, channeling, deck extending, body shortening, building padded tops, hole filling, leading, grilles, headlamps, air scoops, interiors, tail lights, decks, sunken continental spares, making seat covers, sports car restyling, building sports models, specific restyling for all current models... and much more!

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October, 1954

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Cover by Poole

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editorial

THE ROD & CUSTOM experimental pickup truck has passed another milestone. Part II of the sectioning project appears in this issue—but for a while it didn't look as though we were going to make it. The lad who originally contracted for the job ran up against some unseen difficulties and, well—the story begins on page 51.

What's next in store for the truck? It's all up to you readers. We welcome ideas and suggestions—for without them the truck will probably never see completion. It's not that we're too lazy to dream up schemes, it's just that we want *your* truck to look the way *you* want it to. Whether it's low or high, short or long, narrow or wide or whether it's to be considered radical or conservative is all in your hands. To date, the truck's height has been the primary center of interest. Top chopping, first, and now sectioning have reduced the height considerably. Mounting the cab on a passenger car chassis served to lessen overall height even more—and lowering of the chassis has brought us down over a foot and a half from stock. We still have more than adequate ground clearance and the body *could* go even closer to the frame without interfering with headroom, but—we'll leave it up to you. What'll you have?

With overall height temporarily out of the way, we need some thought as to fenders, hood and bed—the details such as head- and taillights, the grille, bumpers and ornamentation will come later. The major body components are matters for immediate concern. Just drop us a line regarding your idea and, if you are artistically inclined, add a sketch or two if you wish. All pickup suggestions are carefully filed away for future reference and none are considered too radical or extreme. We even have a couple of

(Continued on page 65)

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IMPORTANT NOTICE

Due to lack of interest in our Variety Mart column, we have decided to eliminate this feature from forthcoming issues of **ROD & CUSTOM**. The senders of advertisements for this column whose ads have not appeared will have their money refunded.
— Ed.

Who's got a really clean '36 Ford ROADSTER?

I want one in original condition—please send photo if possible, details on the car and state asking price.

**H. ALEXANDER, 5971 CHULA VISTA
HOLLYWOOD, CALIFORNIA**

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MODIFIED
ENGINES
and
EQUIPMENT

Winfield cams, special racing pistons, heavy duty clutch assemblies, dual ignitions, V8 Buick magnesium adjustable rocker arms. For complete details write or phone.

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1954
BOOK
of
POWER

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25¢
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Here's my quarter! RUSH NEW CATALOG ON
POWER PRODUCTS FOR POPULAR CARS.

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ADDRESS

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Correspondence

FOUND: ONE UNKNOWN

I have been a steady reader of your fine magazine since it first hit the stands. Regarding your article "One Fine Ford", in the July '54 issue, Santa Barbara is proud to have the person in their community who owned, styled and built up the car in question. He is Sam Fouse who, at the time the car was built,



worked at Mal's Body Shop here. Sam has since opened his own shop and has been turning out fine work for the custom minded in this area.

Dick Lusink Santa Barbara, Calif.
• We'll be watching for more of Sam's work.

SOMEBODY GOOFED

We read your road test of the Olds powered Mercury in your August issue and feel that a few facts were left out. First of all, Bob Farris *did not* install his own engine. We did it — and think that your readers should be told the truth. We switched the generator to the left side of the engine and built a new bracket for it. We designed, built and installed the front engine mount. We reworked and hooked up the clutch linkage which was a real hassle. Your story would lead one to believe that Farris had done all of this work himself.

Bob Pickel
Bill Milhouse Los Angeles, Calif.

6

• Incidentally, our Editor, soon after the road test and after the engine had been replaced with a '54 model (the original mill blew up during the test), went with Bob and Mrs. Farris to Dayton, Ohio. He reported, upon returning, three difficulties. One: The clutch linkage broke near L. A. and, being late at night with no garage open, they had to continue to Albuquerque, N. Mex., using HIGH GEAR only! Two: The generator bracket broke in Missouri sending it, and the generator, crashing down through the fan and into the lower radiator tank. Three: The engine mount bowed dangerously, dropping the front of the engine to the point where they feared the driveshaft universal might break. Seems strange that they had trouble only with those things you fellas want credit for. By way of suggestion, you might take a look at the item on page 45.

WRONG PLATE

On page 27 of the July '54 R & C there is a photo of a '32 three window coupe which you state is a Tennessee product. I say you are wrong. The license plate is the same shape and size of a California plate, those from Tennessee are shaped quite differently. (Compare the roadster in the same article.) Now, the big question — am I right or wrong?

• Right! Though a Tennessee-built rod, the coupe in question carries California plates as a mark of distinction.

A NON-BELIEVER

I have been subscribing to your magazine for almost two years and in that time have made several interesting observations.

ROD AND CUSTOM, OCTOBER, 1954

1. Your magazine is composed of fabricated lies.
2. Your writers know nothing of what they write.
3. The articles dreamed up are to be compared with science fiction.
4. The cars you feature are monsters and, in reality, do not exist at all.
5. Subscribing to your magazine is like confessing to beating your wife or something equally horrible.

But wait! Before your gleeful mailing clerks send me a delayed action H-bomb, let me explain the above five points.

I am stationed in Kodiak, Alaska, and your publication is the only way I can keep up with activities at home. In my office is one of the most stubborn Missourians that I have ever had the dis-pleasure to meet. He absolutely dis-believes the yarn about the Yates-Mik-kelsen dragster and, in addition, thinks that author Navarro is largely respon-sible for a bit of "opium smoking" thus giving way to inaccuracy and out and out fiction.



I have argued myself hoarse over the accurate reporting of your magazine. However, it has been to no avail. Gentlemen, please help me. I am a lone rod-der in an office of twelve and life is becoming unbearable.

Alden Cooper Kodiak, Alaska

• Don Yates has offered to take your friends for a ride the next time they drop by the nearest drag strip.

ROD AND CUSTOM, OCTOBER, 1954

ZIP AUTO SUPPLY

2911 N. Long Beach Blvd.,
Compton, California

CUSTOM FLARE SKIRTS

\$6.95

Pr.

Ford	36-53	Ply	35-53
Merc	39-53	Dodge	35-52
Chev	36-53	DeSoto	35-53
Olds (exc. 98)	35-53	Chry	35-53
Buick	35-41, 50-53	Willys	52-53
Pont	35-53	Stude	35-52

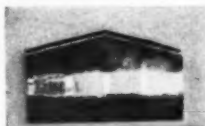
Skirts are all steel with concealed rubber liner. The easily installed skirts are primed for paint.

DUAL TRUE TONE MUFFLER SETS

Complete with 2 mica packed mufflers, head pipe, tail pipe, brackets.



Ford-Merc '35-48	\$19.95 set
Ford-Merc '49-54	21.95 set
Olds 1949-53	26.45
Stude 1951-53	26.45



CHROME RADIO SPEAKER GRILLE

Gives your car the New Look! This grille is the "last word" in

interior customizing. Easy to install. It is not necessary to remove radio. Immediate delivery.

Fits following cars:	
'49-50 Ford	\$3.95
'52-53 Ford	\$5.95
'54 Ford	\$3.95
'52-54 Merc	\$3.95

LOWERING BLOCKS

Complete set all cars

2" Drop	\$2.59
3" Drop	\$3.39
4" Drop	\$4.19

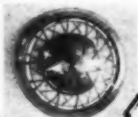
WIRE WHEEL DISCS

\$35.00

Set of 4

Stainless steel & finest chrome, complete with disc locks. Orig. list \$99.50

Give year and make of car. 50% deposit on all orders. Add 3% Sales Tax in Cal. All orders F.O.B. Compton, California.





THE STATION WAGON

Latest customizing bait.

Photos by Poole

A PROMINENT PERSON with a high position in the automobile industry recently said that all automobiles were destined to soon fall into two distinct types. The sport models and the utility vehicles. The former will probably grow from the popular hardtop line while the latter will undoubtedly stem from what we know today as the station wagon.

Just where the station wagon had its beginnings is shrouded in antiquity. It wasn't born suddenly like the convertible hardtop. It goes back much further than that. Some of the ungainly looking cars from the 1900-1910 era could be properly

termed station wagons. Pierce Arrow offered one in 1911. This car had a single seat up forward and a wooden-sided platform in the rear which could be equipped with seats or left bare for storage and hauling of goods. More correctly termed a truck, you say? No. These models had wooden tops - removable, true, but they would qualify as a station wagon, even today.

Henry Ford hit upon the idea of a wooden bodied, utility type passenger car back in the twenties. The first models were such a hit that the company has continued building them to the

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present day — forsaking wood for steel, though, as we shall see.

The intent behind the station wagon was to build an all-purpose vehicle that could serve equally well as a passenger car and a pickup truck for hauling Aunt Martha's baggage home from the railroad station whenever she came for one of her extended visits.

A million and one uses were ultimately found for the popular little wooden car. They have been used as ambulances, emergency vehicles of all types, for newspaper delivery, for camping (the elongated, flat floor is an ideal place to unroll a sleeping bag) and for carrying everything from auto parts to zithers.

The station wagon met with little enthusiasm from avid car enthusiasts. Invariably the drivers of these carryalls were deluged with calls of, "That's a nice car, why don't you take the crate off of it?", and, "Hurry up, the termites are right behind you."

To Hop Up a station wagon was practically useless, they were too heavy and cumbersome to really scat as did their metal brethren and they lacked good handling qualities — the center of gravity being somewhere in the vicinity of the turret top. Customizers shied away from them for to restyle one meant the use of a keyhole saw and a tube of wood filler. Only rarely did someone actually attempt to alter the station wagon. One notable exception was a '41 Buick that sported a chopped top. Customizers were necessarily limited to hood filling, lowering and the addition of skirts and various moon-type hubcaps. Staying always within their realm — metal.

The industry attempted to place a new emphasis on wooden-bodied vehicles immediately after World War II by bringing out a new line of station wagon convertibles. These enjoyed immediate success but, alas, it was short lived. The wooden portion of the bodies required re-varnishing at least once a year and, again, they were complete with an overabundance of weight.

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Al Twitchell's '52 Ford Ranch Wagon before the front end was altered presented a rather uninspiring appearance. For a good example of what can be done, look at the next two photos.



The wagon in the works. Headlights have been frunched, hammered airscoop is finished, and grille opening modification is in progress. '54 Ford lower hood strip has been tacked on.

What a difference! '54 Pontiac center bar, '53 Ford parking lights combined with '54 Ford grille tips and chrome strip surrounding the opening transform the car's basic appearance.



The final attempt by manufacturers to bring the disappearing station wagon to the front of the best-selling list was the elimination of the wooden body. In its place, metal bodied wagons with wood-type decals plastered here and there began to appear — more or less as an experiment. In some cases the change-over was slow — often a company would offer two wagons, one of wood, the other metal with decals. About the same time Nash tried a final push for wood by offering a plywood sheathed sedan. An accessory company offered paneling for Chevrolet passenger cars. Neither met with much success. Decals, apparently, were the answer.

Wooden wagons still kept coming but it was the same old story. The wood was a bother. If not kept up, it turned dark and streaked. At the same time, the all metal cars were selling like hot cakes. The era of the wooden body had ended. Chevrolet now offers a choice of three station wagons and their exists the possibility that their Nomad may yet see production. Maybe the prophet is right!

The Ford Motor Company offered, in 1952, not two but *three* types of wagons. One was wood — it didn't sell like the other two. Another, the "Ranch Wagon" sold. This standard-type model, though incorporating the same basic lines and treatments as its more expensive counterpart, was devoid of excessive trim. It was just the thing for hunting and camping — and our aging Aunt Martha could be delivered to the house in grand style, her luggage stowed neatly.

About the same time that the metal wagon became a best-seller, customizers and hop up enthusiasts alike had turned to the lowly pickup truck as unused bait. Pickups received the full treatment from both factions — chopping, channeling and a wide variety of potent engines have powered the vehicles across sand, salt and asphalt alike. Now the pickup truck is old stuff — the station wagon is next.

Al Twitchell's interest in cars had its beginning immediately after World War II. He ran the gamut from convertibles, coupes, sedans and pickups but has finally settled on a '52 Ford Ranch



Wagon as the basis for a bit of experimenting.

He has a family — a wife and three kids — so radical rework was out of the question. Besides, he'd driven for years in handle-less, low-topped, ground-dragging cars and had found that his enthusiasm had dwindled. But — he still loved the sight of a "different" car, one designed after next year's models, and trying to outguess the industry is something!

The car shown on this and the accompanying pages is the result of Al's conservative thinking. The car embodies all the features and conveniences originally intended for it — door handles, etc., — but it also incorporates a quantity of custom work. The hood, for instance. No '52 Ford wagon hood has ever continued down to the grille opening as does Al's. No '52 Ford wagon ever carried such an air scoop — continuing clear back to the cowl and *hammered* to shape. Not built up and added as a separate strip of metal — *hammered* into the existing hood metal.

Now the grille. The center section is from a '54 Pontiac but the parklights and the grille tips are the combined parts of '53 and '54 Ford grilles.

The taillights, too. Al, since he is employed as a body man for a Cadillac-Pontiac dealership in Upland, Calif., has turned up with his wagon sprinkled with a few GM additives. The taillights are '54 Olds, as are the vertical strips on the tailgate. The latter were added after removal of the swing-down license plate and lamp.

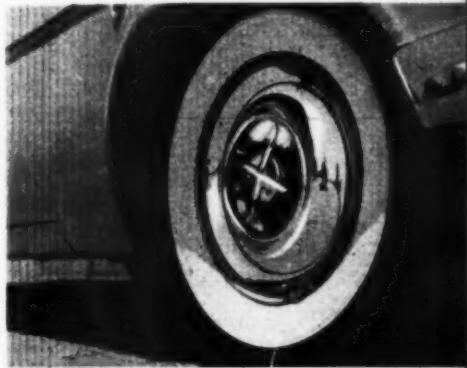
A combination of '54 Ford and '53 Mercury side trim provide the rub strip for the sides of Al's wagon. Hubcaps are '54 Chrysler New Yorker.

The final mark of distinction is the addition of the letters *w-a-g-o-n* on the nose. The name is well suited — for the car is used as intended. An all-purpose hauler, easily convertible from a camper to a town car.

The metal station wagon is here to stay — let's leave wood to the forests. ●
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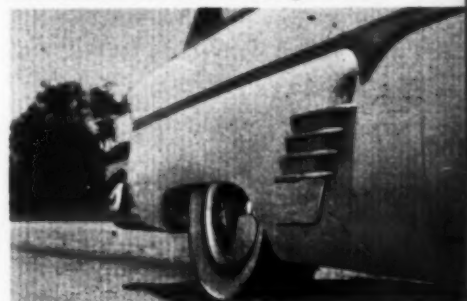


There is no substitute for good taste when it comes to the original styling of a grille modification. This is one of our examples of the truth of that statement. Note tag treatment.



Wheel discs have always been a controversial subject among custom enthusiasts. The editors of ROD & CUSTOM think that AJ Twitchell's choice of '54 Chrysler hub caps was a wise one.

The stock contours of the body apparently were just begging to be given the '53 Mercury horizontal chrome strips which bodyman Twitchell installed. Main side trim was changed to '54.





MUSKETEERS FIRE VOLLEY FOR ORGANIZATION!

By Bob Pendergast

Photos by Peole, Spence

A MILITARY ACADEMY is usually associated with small boys playing soldier, but Los Angeles' Black Foxe Military Academy boasts big boys that are much more interested in customizing automobiles. These potential generals have proven their ability for organization by forming a custom car club composed of students attending the academy. As usual, their club is the result of one person's idea. Six months ago, Roger Lawson, a student at Black Foxe, decided that if the custom car enthusiasts at his school would band together and adopt a name they would be recognized as a club by the school instead of

being referred to as "those kids that are always tinkering with their cars". At that time the school had a ready made nucleus of a club in the form of nine cars, all customized to a varying degree. Roger contacted the owners of these machines and told them of his plan. At an informal get-together Roger Lawson, Wes Idol and Pete Mellos were selected as the proposed club's temporary officers. Roger was slated to be the president pro tem, with Idol and Mellos filling the posts of vice-president and secretary-treasurer, respectively. These three young men will guide the club until elections are held in the near

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Two more Mustangs in this photo are, L. to R., Roger Lawrence, Chuck Owens and Dick Simons.



Chuck Owens and Jerry Horst discuss the lies on Jerry's newly customized Olds "Stuffer".

Eight of the original nine charter members of the Mustangs pose with Pete Hoffman's '67 Ford convertible. Pete is the Secretary-Treasurer of the Mustangs club at Black Pine school.



Dick Simons reveals the location of the door handles on his custom Chevrolet to Wes Ishii.



Jerry Horst seems to be amazed at Owens' comments on customized life, especially his own.

future to determine who the regular officers will be for the next year. By mutual agreement, Wednesday night was selected to be the regular meeting time. At the first regular meeting the natural thing to discuss was a name for the organization. Because all future reference to the group would be made by the name they chose, the task was given serious consideration. Several good names were suggested by the temporary officers and the final selection was made by popular vote of the general membership. The name selected is the "MUSKETEERS", which not only puts them right in style with the currently popular practice of naming car clubs after

groups with historical significance, but also ties the club in with the militaristic theme of the school the members attend. Since the inception of the club, five new members have been accepted, bringing the current total to fourteen. The Musketeers hope to expand even more in the future. Their group has been responsible for a substantial increase in the amount of interest shown by the students at Black Foxe toward custom cars.

For a club that has been in existence only six months, the Musketeers have done quite well. Their club organization is far from finished, however. They realize, as far too few new clubs do, that just picking a name and getting some

Seven of the nine cars with which the Musketeers started are shown here: Owens' Ford, the Herbst "Starfire", Simoni's Chevrolet and the Fords of Norb Orens, Rothschild, Lawson and Mellas.



club plaques made up does not constitute a going organization. The Musketeers had the one thing in their favor that most clubs lack: a definite purpose for the club to fulfill before it even exists. Their goal of recognition at their school has been realized.

The theme of any similar organization does not necessarily have to be the same, however. Most car clubs originate from a group of youths who have known each other for quite some time, frequently former classmates in school. If they wish to identify themselves as a group with an automotive hobby, there is no reason whatever for that not being a perfectly valid purpose for their club.

After the identification has been made by the aforementioned club plaques and-or jackets, the chore of keeping the member's interest up looms menacingly. ROD & CUSTOM'S editors frequently receive letters from readers stating that their organization got off to a flying start but has since fizzled out. The reason usually given is poor attendance at meetings. This is not the cause, but merely the ultimate effect of dull and boring meetings. The meetings are uninteresting to the members because there is nothing for them to do, *as a group*. We do not mean by this that the club concerned should be the main



Norb Orens tells Pete Mellos how easy it was to put a '54 Pontiac grille bar in his '54 Ford convertible using only the simplest of the hand tools: a screwdriver and a hacksaw.

Dick Simoni's purple Chevrolet was customized by Barris. One of the car's more unique features is the location of the electric door latches in the door's chrome molding strips.





Wes Idol's '53 Ford Victoria has had the head and tail lights given a treatment that makes the car look as modern as tomorrow. Wes is the vice-president of the academy's Musketeers.

source of amusement to its members, but there should be enough happening, in the form of at least one club event a month, to make the members want to attend meetings just to keep posted on future plans of the group.

But who is to make all these plans for club activities? That is the secret of all the smooth running clubs in existence. The entire group takes part in the planning of each and every event. If the burden of thinking up things for the club to do consistently falls on the same people, sooner or later they are bound to run out of ideas. This does not mean that having a regular planning committee is wrong. It just means that there should be a constant turnover of fresh talent allocated to the planning committee. A good idea is to arrange the appointment of members to this committee in such a way that during the year each member will have

Owens and Herbst with Owens' '53 Ford Victoria. Herbst seems to be giving Owens his opinion of the taillight treatment on Owens' "Vic". Note the depth of the taillight recesses on this car.



helped to plan at least one event personally. Expanding the size of the club is a good bet, too. New members invariably mean new ideas for club events.

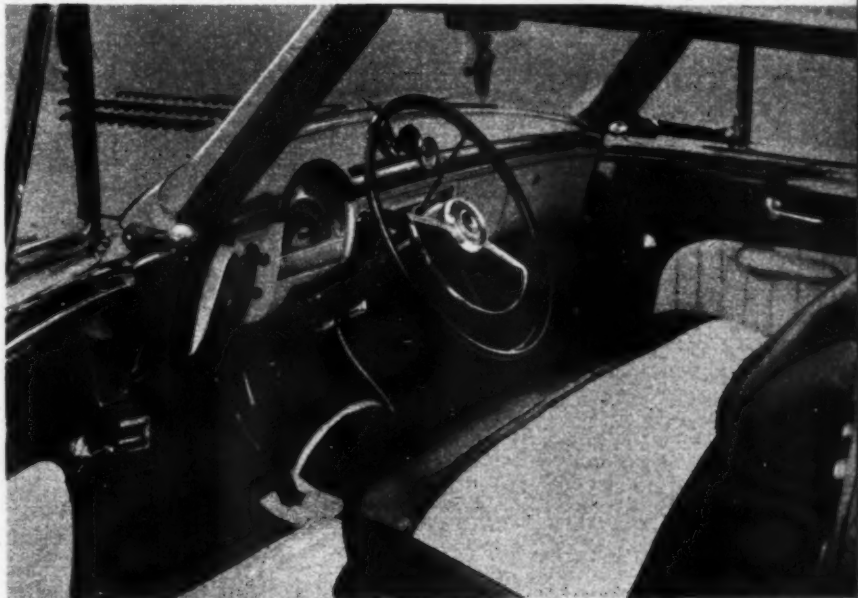
Another frequent cause for want of interest on the part of members is lack of organization. A good set of by-laws, which are easy to draw up, can correct this situation. Get the members of your club together for a bull-session on their opinions of the rules they want your club to have. Whenever the group decides on something, write it down. It's as simple as that. By the time the meeting is over you will have a set of by-laws. At future meetings, these by-laws will guide your club officers in the smooth running of the group. If your club's members want it to succeed, you just can't miss.

So be like the Musketeers, form a car club and have a ball! ●



Front view of Chuck Owens' Victoria. High quality bodywork is obvious in the treatment of the floating grille bar. Note how carefully the body contours were blended into the bar.

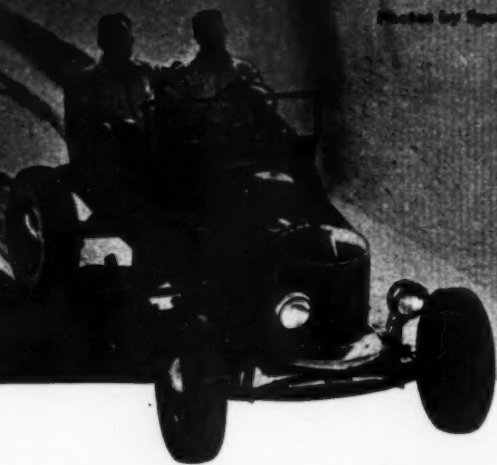
Knocked-out interior of the Owens car carries out the theme started by the custom bodywork on the outside. The black and white leather contrasts handsomely with the green finish.



Down near the juncture of California, Arizona and Mexico, lies one of the most barren, arid regions of the United States. For years, man has attempted to conquer this sea of shifting dunes of sand with little success. The new dune buggies have finally done the impossible. So, why not? Let's take a ride in...

arizona's dune bugs

Photo by Spencer





Ted happy dune bug drivers play tag along the rim of a high dune. Vertical height of dune in photo is 150 feet—high as a fifteen story building. Slope drops off gradually to 45° but nevertheless, cars storm up and down, back and forth as though they were on level ground. Cars are primarily used during winter months, photos were taken in middle of July and temperature ran at 115° mark. Strangely enough, despite the heat of the day, not one of the cars boiled.



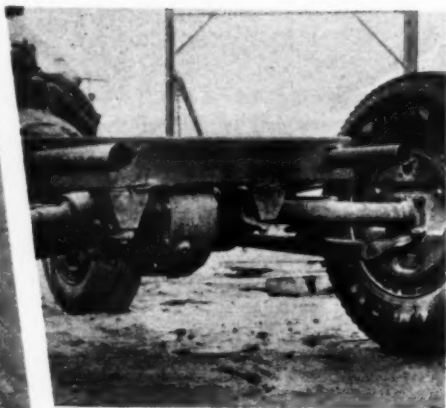
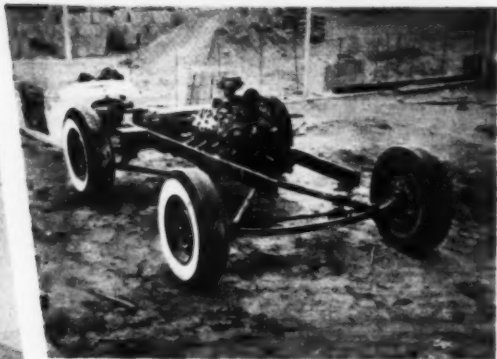
Flexibility is the password to a successful dune bug. Chassis and bodies are constructed so loosely that one front wheel may be raised as much as two and a half feet from the ground, yet other three remain firmly implanted on terra firma. Drivers care little when sand gets into brakes for it later seeps out causing no damage. Tires on some cars are 9.00 x 16's deflated to 8 lbs. pressure; the greater the tire-surface contact, the less the car will sink into the soft sand.



Dune bug rider, unmindful of airborne from wheels, gleefully heads for outer space. Instant later gravity took over and the car returned to earth with a crash. Surprisingly, no dune bug has ever turned over and only injuries have been scraped shins and similar minor bruises. These were incurred from belling out when danger loomed. One bug stood on its nose, leaving a print of radiator in sand, but air dropped back on all four wheels with no harmful effects.

Happy sand bug driver tries unsuccessfully to negotiate particularly steep dune. Sand will pile at a ratio of 1 to 1, one foot vertical for every foot horizontal with a resultant slope of 45°.

A fast run on the level before attacking a dune will get bugs up many smaller hills, but only rarely will one chew its way up a slope as high as that pictured. Once car stops on steep slope, further progress is impossible as driver lets car roll off its own accretion back to bottom.



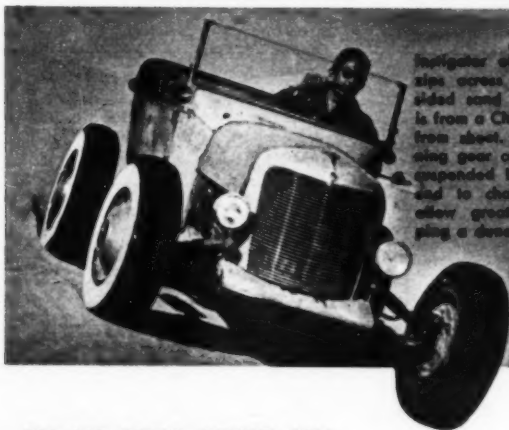
The latest thing in dune bugs is this car being built by "Sandy" Sanders of Yuma. Rear end features swing axles suspended by coil springs for flexibility. Center-mounted mill will permit driver to sit in front adding to the roller coaster effect of riding the dunes. Lightweight, large tires, great ground clearance and short wheel base are all necessary to a successful sand car, though cars still scrape their centers when topping a steep knoll.



Tires, deflated to roughly 8 lbs. pressure, are pumped up to normal size by spark plug compressor on engine. Will Hawkes, in photo, moved from Calif. to Yuma in 1947 for his health, was builder of first successful dune bug. Idea was born when family Model A couldn't negotiate deep sand. Will stripped it down, relocating weight further aft and shortening wheelbase. Engine was later replaced with a V8. Other enthusiasts rushed to copy design early in 1950.



Down the steep side of a high dune, Ray Corder dumps it in second gear and "wands on it." An experience like this is enough to frighten the wits out of people used to driving on fairly level highways. Seconds later, Ray dumped it hard in third gear and chugged back to the top, accompanied with great clouds of sand and rear of unsmiled pilot(s). Can have old highway down dunes for some \$200.00, without having time to get seriously bogged in sand before



Navigator of original dune bug, Will Hawkes, zips across flat area before tackling a steep sided sand dune. Body is early V, grille shell is from a Chrysler product, hood was hand made from sheet. Frame is 3" channel iron, all running gear components are Ford. Both axles are suspended by parallel springs, secured at one end to chassis, at other to sides. This will allow greatest flexibility, necessary for tackling a dune at an angle. Note angle of shocks.

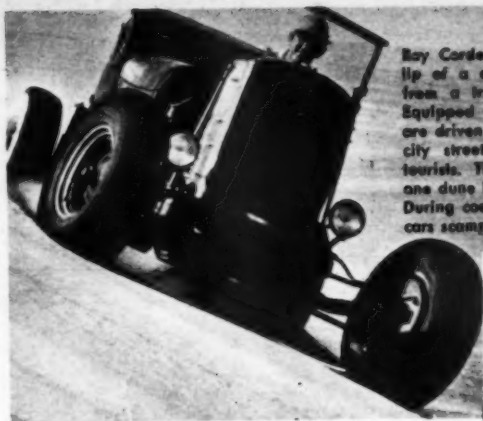
With shouts of delight and the roar of unmuffled exhaust, two dune bug drivers crash over the top of a high ridge and start down opposite side under full power. Note how sand is thrown ahead of cars though they are traveling close to 35 mph. Looks are not required for construction of a dune bug and other than short trips around town they are a single-purpose machine. The cars have seen action for over three years, many of the original buggies still in constant use.



Police officer DeLozier follows Ray Corder's bug over the long abandoned board road used in the early days. Drifting sand, covering tracks sometimes within half hour, caused headaches to highway engineers for years before modern highway was finally constructed. Drifting sand still covers highway requiring constant patrol by highway graders. Dune area, about ten miles wide, extends from Calif.'s Salton Sea to Gulf of California, about 100 miles.

Car at right is fitted with a Model A cowl, fastened loosely to the flexible frame, and mounted live rear. Note water-filled canteen for drinking. Car at left is reminiscent of the old California Modified, turned 93 mph in the standing quarter. Cars are taken to the dunes in groups, a trip alone could be disastrous in case of break down. The area is completely barren of water and cars sometimes journey 20 to 30 miles from the only highway.





Ray Corder, Yuma filling station owner, rounds lip of a dune at 60 mph. Over-size radiator, from a truck, prevents boiling almost 100%. Equipped with hood and taillights, the cars are driven in and around the Yuma area on the city streets, being eyed suspiciously by the tourists. Though built primarily for sand use, one dune bug turned 93 mph at a 1/4 mile drag. During cool winter months, as many as fourteen cars scamper back and forth over the dune area.

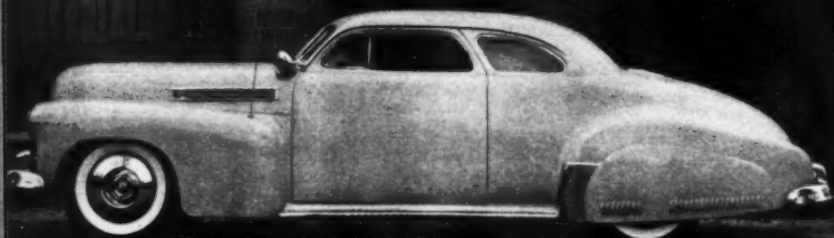


Ungainly looking dune bug of Ray Corder, lacks non-essential components, features 72 inch wheelbase but stock width. One of the most enthusiastic followers of the sport, Ray Corder has made more trips to the dunes than any other enthusiast. Car (?) is one of the original models, though now fitted with a V8 engine. Cowl section is from a Model A Ford. Traction is gained by placing majority of weight over rear wheels and deflating the over-size tires.

Returning to Yuma after a day's outing, one car bounces merrily over the "soft shoulder" area beside the roadway. Amazed motorists sometimes try to follow the dune bugs, become hopelessly mired scant yards from the highway. One tourist's car had to be carried back to highway after tow car with winch was unable to drag it out with a cable. Max DeLester, driving car at right, is a Yuma city police officer, finds dune-bugging much more fun than patrolling the city streets.



Photos by Spence



PAUL'S *Idea*

Restyling a pre-war Cadillac.

PAUL DALLMEIER had always wondered if it would be in good taste to chop a Cadillac's top. The "Standard of the World" is supposed to be the ultimate in styling, so many people believe that to restyle a Cadillac is to worsen its appearance, it couldn't possibly better it. To prove a point, Paul finally (after a long search) availed himself of a Cadillac — a '41 club coupe, model 62. True, the car was not quite as up-to-date looking as its late model bretheren, but Paul decided to try his hand at custom restyling to see what would result.

With Marvin Webb, of Anaheim, Calif., elected to do the actual body modifications, Paul began the project he had laid out for himself by redesigning the rear of the Cadillac. The trunk lid was relieved of its opening handle and ornamentation, and the holes filled by brazing. Next, the original taillights were discarded. The left light unit housed the gas fill pipe so when the resulting holes in the fenders were filled, the pipe had to be relocated inside the deck. Small '48 Ford taillights were purchased and set into the fenders, partially hidden by a '50 Oldsmobile bumper. The final treatment given the rear end was the frenching of the fenders to the body. Though this enhances the overall appearance of the big car by giving it a one piece look, should either fender become inadvertently damaged the removal and replacement of the damaged section would run into a lot of cash.

The side trim and door handles were next. With the holes resulting from their removal filled, electric solenoids were mounted so the doors could be opened by the touch of a button — the inner ones being mounted on the dash.

At last came top chopping time. Paul had Marvin hack 4 inches from the front of the top and $3\frac{1}{2}$ from the rear. Because the vertical sections of the top no longer aligned when the upper section was replaced, it became necessary to slope both the windshield and the rear panel to a greater degree in order to achieve correct alignment.

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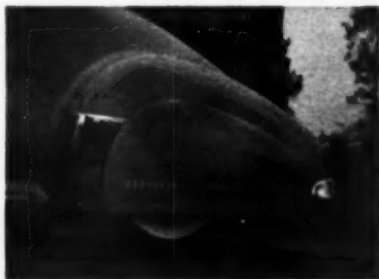


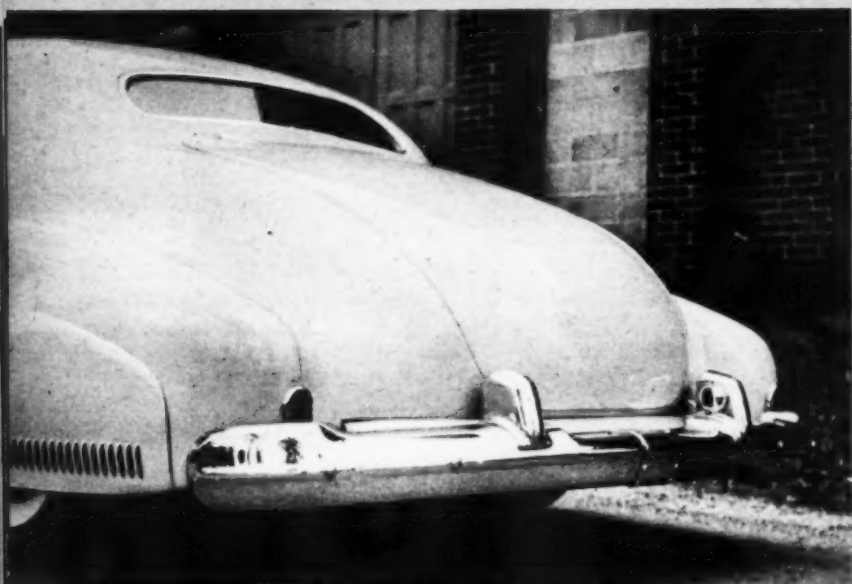
A grille was formed from 1 inch diameter chrome moly tubing. The area just below the forward lip of the hood was paneled in with sheet metal. Like the rear, the front is protected by a '50 Oldsmobile bumper.



'41 Cadillac, lowered equally both front and rear, was driven from California to Indiana with no ill effects. The owner was afraid the poor highways might cause axle-frame bottoming.

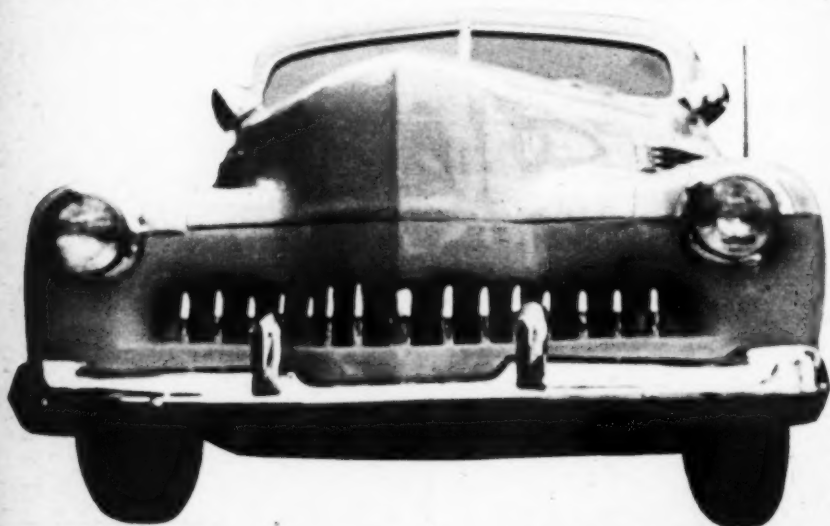
Rear fenders were joined to body by welding and leading. Louvered skirts are used more for appearance sake than advantage. Gravel deflector was retained to prevent paint harm.





Restyling of pre-war car nowadays is a little unusual, to say the least. Customizers seem to be drawn toward late model cars as the basis for rework, whether it be moderate or radical.

Unusual grille styling consists of vertically mounted, chrome moly tubing set into small oval opening. Area between fenders and just below hood was filled with sheet metal molded in place.





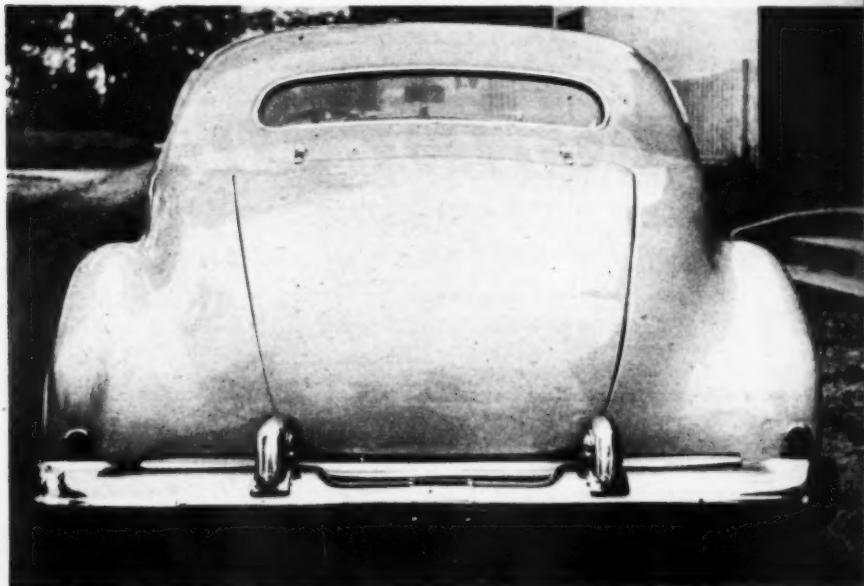
Windshield of Dallmeier's Cadillac was cut down four inches. Twin spotlights were added. Upon completion, the car was painted the '54 Cadillac lavender-like Iris Blue, lacquer.

Additional alterations called for a filled hood top, lowering both fore and aft, the addition of '53 Cadillac hubcaps and a set of unobtrusive dual exhausts.

The final touch was a multi-coat Iris Blue ('54 Cadillac) lacquer job. No sooner was the paint applied than Paul, and family, high-tailed it for Indianapolis to see the 500 Mile race. As long as he was in town, Paul figured, why not display the car at the week-long Indianapolis Custom Auto Show? Once he had arrived in town he looked up Ralph Potter, the show promoter, and asked if the car was worth displaying. Ralph's reply was, naturally, in the affirmative.

Paul reports that, even though boasting a fairly radical lowering job, neither he nor the car suffered any ill effects from the 5,000 mile trip — from Santa Ana to Indianapolis and back. A tribute to forethought and sense during the restyling of Paul's Idea. ●

Except for '50 Oldsmobile bumper and '48 Ford taillight rims, the Cadillac has been stripped of chrome ornamentation. The deck lid is opened by pushing a button located on the dashboard.



**Readying a Streamliner
for the salt.**

Photos by Moon

On Your Mark ... Get Set

... BONNEVILLE

THE TIME: 1937.

The place: El Mirage Dry Lake, California.

The scene: Two ferocious hunters on the look out for jackrabbits.

Action: "Hey! There's one over there." Bam! "You missed! Quick, there's another!" Bam! Bam! "Got 'em!"

Chuck Potvin and Doug Hartelt were teenagers spending a weekend doing something a little different. They had strayed to the dried up mud flats in hopes of scaring up a few of the notably large rabbits known to be in the area.

28

After a few more shots, they heard a voice hailing them from beyond a clump of sagebrush.

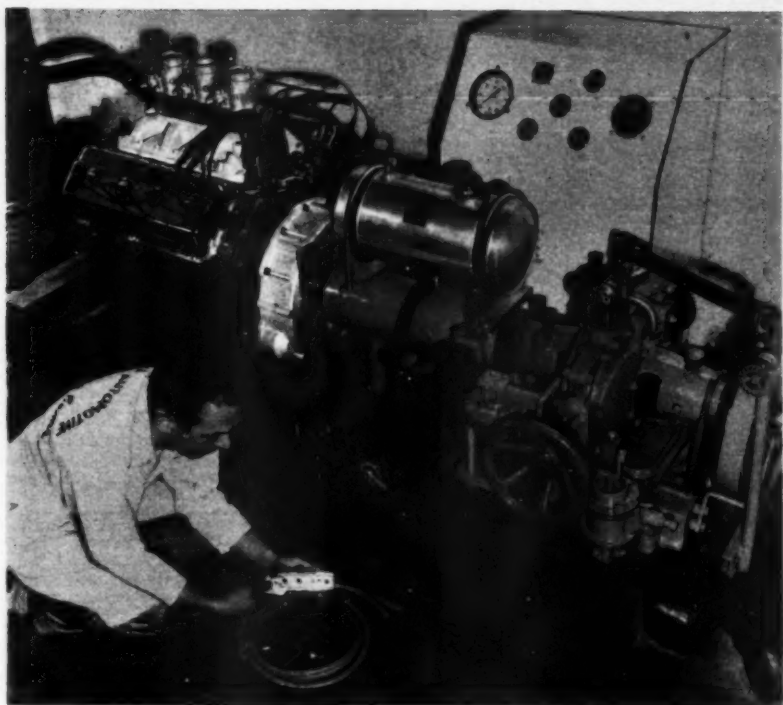
"Hey! Are you guys shooting at us?" From around the brush came two men in a '27 T. They appeared a little scared but were determined to run off the hunters.

"We're having a lakes meet and you guys can't shoot around here."

"A lakes meet, what's that?"

Chuck and Doug looked askance at each other, both wondering what the owner of the Model T was talking about.

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Chuck Potvin at work on his labor of love, the 257 cubic inch De Soto V8 that will power the Potvin-Hartelt streamliner in Class "B" at the salt. Engine has pulled 320 hp on methanol.

After a brief exchange of words, the hunters found their question answered. A newly formed organization with the jaw-breaking name of: Southern California Timing Association (abbreviated to SCTA), were running several cars across the deserted lake bed to see how fast they would go. To protect themselves from any stray gunshots that might inadvertently come their way, the men in the T asked whether Chuck and Doug would care to run *their* car—a nearly-new '32 Ford roadster. They agreed and the requirements for a timed run were explained.

Two flags, roughly 20 feet apart, marked the start of a measured strip of desert. *Approximately* a quarter of a

mile further across the sun-baked floor were positioned another pair of flags. After a running start, the car must pass between the two sets of flags. A "timer", flag in hand, would signal when the car passed the first marker. Another "timer" would do the same when the car passed *his* post. A third man with a stop watch clicked off the seconds as the car sped down the "course", then figured out the average speed of the run—often as close as within 5 mph.

Time trials, speed runs and competition in general has come a long way since those early days in California. Now, electrical timing devices measure a car's speed through a highly accurate measured distance and record the result-



Doug Hartelt, Potvin and Otto Ryssman contemplate the healthy Chrysler V8 that their car will run in Class "C". Ryssman can claim more runs at 200 plus than any other hot-rodder.

ing speed to within thousandths of a mile an hour. The handful of cars attending these early meets has risen to many hundreds. And Chuck and Doug have grown with the sport.

Since their first meet with the SCTA in 1937, they have become an inseparable duet—building cars and engines and forever trying to break this record or that. Many are the records they've taken.

Several years ago a third individual entered the team. He was Otto Ryssman who, only recently, drove Chuck and Doug's latest creation 203 mph across a dry lake bed. The fastest lakes time to date and the fastest a car has ever been driven in the state of California!

The car is the Post Streamliner, originally built by Shorty Post, of Orange,

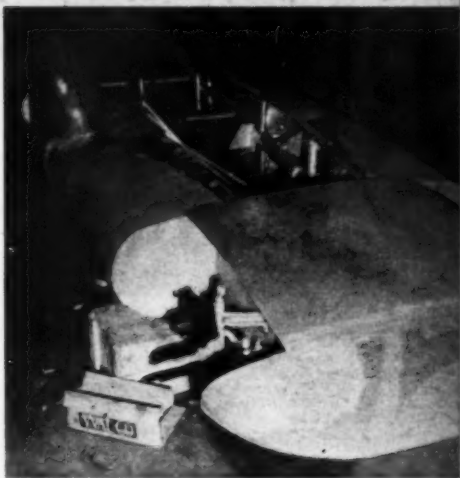
Calif., and entered for its first Bonneville meet in 1952. Chuck Potvin and Doug Hartelt recently took over sole ownership and elected Otto to drive the bomb. Otto, incidentally, is a charter member of Motor Life's 200 Mile an Hour Club and has probably exceeded that mark more often than any member.

Power for the Potvin-Hartelt Streamliner—still bearing the Post name on its nose—will come from at least two different sources. The engine that powered the car on its lakes run of over 200 mph is the same mill that powered Fred Carillo's car at the salt last year. The same engine, again, has provided the punch for the Potvin-Hartelt coupe. (R & C for June, '54.) Not content with action in one class alone, Potvin has just completed work on a new DeSoto

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V8, complete with 257 cubic inches and with a fantastic output of 320 horses on straight alcohol. Tests on the engine have not been completed at this writing but it is understood that nitrated fuels will probably be used at Bonneville during the first week of September. The latter mill will put the Streamliner in Class B at Bonneville or in Class C for the International runs.

Here's a brief rundown on the modifications to the DeSoto. Stock stroke, bore sleeved down to 3½ inches. J & E pistons. Crank reworked for additional oil passage and with grooved main bearing journals. Dodge truck flywheel lightened to 15 pounds. All reciprocating parts balanced. Water pump ratio reduced by one-half. Heads provide a compression ratio of 12-1. The stock diameter valves have been lightened and polished. Battery ignition converted to 2-12 volt coils, both American Bosch. Manifolding is accomplished through an Edelbrock single quad, reworked to accommodate 3-"97" Strombergs. The cam is by Potvin, naturally, termed a "Flat tappet Eliminator" with a lift of .425" and with 284 degrees of duration. Push rods are ⅝" tubular adjustables, also by Potvin. Valve springs are standard DeSoto. The engine will fit the Streamliner's Ford transmission



The mystery of the year surrounds the Herbert streamliner. Rumor has it that two (2) Novi mills might supply the push! Herbert isn't talking, so August 30th will tell the tale.

New wheel covers are being fabricated for Chet Herbert's "Beast No. 4", part of the never ending quest for a cleaner configuration. Herbert evidently plans on going far faster than ever.





The Polvin-Hartelt streamliner uses carburetors only when competing at short-distance events.

through the use of a Cyclone adapter. A novel feature of the car is the floor shift gear box, complete with reverse!

Another interesting point of the car's two engines is the complete absence of fuel injectors and magnetos. Future plans call for both on the two engines, but to date the engines are putting out more than the expected horsepower rating without the addition of either item.

Also in the offing are magnesium

wheels and a set of Firestone's Bonneville tires. As for the body of the car, a fully enclosing plastic canopy will be fitted as well as other minor modifications.

The car in its present state turned better than 200 through a *total* course length of only one and a quarter miles. Watch this bomb when it rolls across the salt for nearly ten miles. With room to prove itself, the car should be the one to watch during Salt Week. ●

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**Customizing your car from a kit —
a 55 minute grille conversion.**

ACCESSORY Installation

Photos by Spence

WE KICKED off this series of Accessory Installations 'way back in July of 1953. Since that time the step by step procedures for installing a wide variety of currently marketed products have been illustrated. To give both our rod and custom lovers an equal chance to follow specific installations from start to finish, we have, reviewing the 15 intervening issues, managed to attain a balance between these two groups of auto enthusiasts. This time we're back to those interested in customizing — and with a conversion so simple — yet so complete — that an up to date face lifting was given the car illustrated in less than an hour!

Things run in cycles, it has been truthfully said, and R & C's Accessory Installation is no exception. The first article in this series dealt with a straight bar grille with the product being offered by the California Custom Accessories Co., at 301 W. Jefferson Blvd., L. A., Calif. Now, here we are back again to the same supply company and with a similar grille switch — but this time it concerns the ever popular '49 and '50 Fords.

This grille conversion is *not* similar to the many floating grille bars presently on the market. This is a true *kit*! All parts necessary for the modification accompany the center grille piece. Parts
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California Custom's conversion kit for the '49 and '50 Fords is shown in the foreground. The only part depicted here not included in the regular kit is the bullnose strip for the hood.



Nuts attaching parking lights to fenders must be removed. It is not necessary to disconnect parking light wiring. Wires are of sufficient length to permit moving light to clear bar.

New latch releasing rod must be installed with bolts provided in kit. Half-inch hole in plate behind stock hood latch must be drilled first. New latch operates from stock control in cab.



included in the kit are: center grille bar, top grille filler molding, safety latch conversion parts, a well illustrated, easily understood set of instructions and — believe it or not — a hood cut-out filler panel. This last item, or the *lack* of the last item, has upset customizers from coast to coast for as long as Ford floating grille bars have been popular. Take out the bulbous, stock center spinner and the top bar center piece and what have you got? A hole in the hood! To attain the "smooth" look to that Ford of yours, that hole must be filled. What to fill it with? That's easy. Cut up an old oil can or a discarded fender — and slice your finger while you're at it!

Calif. Custom's grille conversion kit includes the filler panel and it can either be bolted in place and painted to match the car (the seam is no more unsightly than the many existing seams in the car body) or it can be welded into place. Presto! The hole is gone!

The conversion begins by marking the location of the stock center bar on the extreme lower ends of the top grille bar. Next, remove the stock center bar by unbolting it from beneath the fenders — don't try to disassemble it in its stock location for it is unnecessary and hard.

Third, remove the nuts that secure the parking lights to the fenders. It isn't necessary to disconnect the park light wires, just let the light assemblies hang free of the fenders.

The center section of the upper grille bar is the next item to go and this takes only a few seconds. Beg, borrow or steal either a hack saw or a pair of tin snips and cut two or three $\frac{3}{8}$ " long slots into the top ends of the original upper bar segments. Hunt up a pair of pliers and bend the tabs down to roughly 45°.

Remember the markings you made on the lower ends of the top bar sections? Cut along these lines now, being careful to follow the marks you indicated. Now go back to the gap between the upper ends of the top bar and install the molding provided in the kit.

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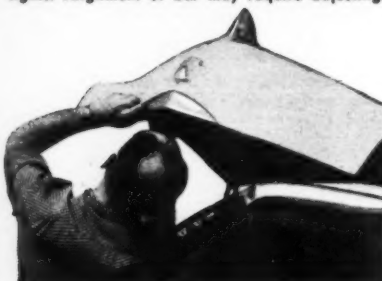
This photo shows car with new latch installed but before placement of grille bars provided in kit. Center piece from upper grille bar has been removed preparatory to doing next step.

Stock upper grille bar has been replaced with special bar from kit. Note how new bar blends in with old; line of demarcation between the two being the next best thing to invisible.



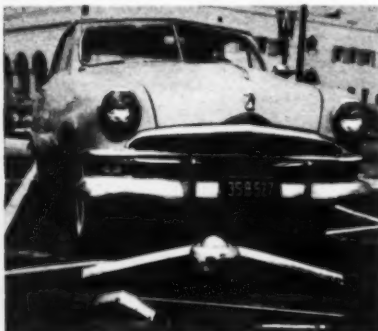


Center floating grille bar from kit has been installed. Holes must be drilled between end plates of special bar and bodies of parking lights. Alignment of bar may require adjusting.



Hood filler panel is being screwed into place. If so desired, panel may be welded into position and leaded. Advantage of mounting with screws is low cost; matching colors improves looks.

Finished job took less than an hour, but car looks as if extensive and time-consuming modifications have been done. Molley conglomeration in foreground is stock parts left over.



Hold the new floating bar in proper position inside the park lights which you had temporarily pulled aside. Be certain that the contour of the new bar aligns with the park light body shape. If the fit satisfies you, drill holes between the end plates of the new bar and the parking light bodies.

Automobile front grille assemblies have a bad habit of varying in dimension even between similar cars of the same model. Therefore, you may find that the new bar is too short or too long to fit in the space provided between the fenders. If it fits, you're in business — if not, add bushings or spacers between the bar end plates and the park lights. Should the bar appear too long — then you've forgotten to trim off the lower tips of the top bar segments.

When the bolts are tight you may notice that a little flexing is present in the center of the unsupported grille bar. If this disturbs you, take the stock supporting bracket from the grille parts discarded and re-install it. This will eliminate all tendency of the new bar to vibrate when crossing bumpy roads.

The hood filler panel can now be positioned using the screws provided or it may be welded in place if you wish to have it leaded and the hood painted.

Though the grille conversion kit does not include it, the car in the accompanying photographs was fitted with Calif. Custom's popular bull nose molding to rid it of the stock ornament. This required an additional five minutes.

One hour from stock to custom — Calif. Custom has itself a real hot item.

The last but biggest job of the whole project involves driving over to a friend's house to see if he notices the fine "new look". Chances are he will — and so will everyone else.

Conversion kits by the Calif. Custom Co. are probably available at your nearest speed or custom shop but if not they can be ordered direct from the company's Los Angeles location. Parts may be ordered separately or as a unit. The complete conversion sells for \$27.90. ●

Should Studebaker build a convertible,
would it look like ...



Pretty Miss Patti Layne, a San Francisco model,
and rare, '53 Studebaker Commander convertible.

LUNDQUIST COACHCRAFT *Commander*

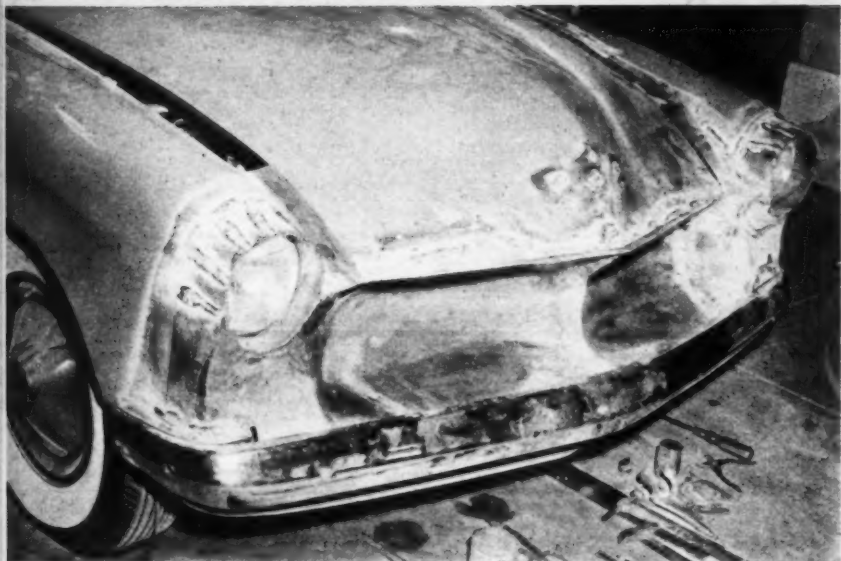
A spanking new Studebaker hardtop, delivered to Coachcraft with 17 miles on the odometer, was hacked up unmercifully even before the owner had seen it. Initial plans called only for top removal but subsequent radical alterations gave the Commander a completely different appearance.



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CAR DESIGNING is a business not to be attempted unless one has a background of art education, mechanical engineering and at least a little knowledge of auto assembly techniques. Should these basic steps be sidetracked, and should the individual go right to work with the restyling of a standard production car, the result might be something so badly unbalanced appearance-wise that enthusiasts would laugh the unhappy individual out of town.

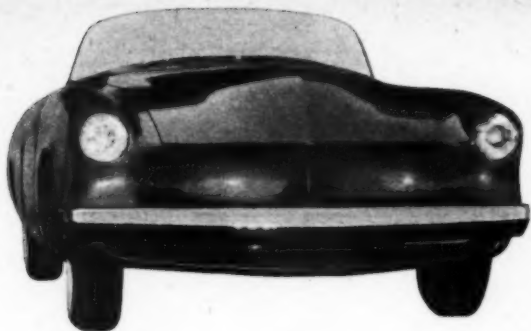
Naturally, while the meaning of the word restyling could be stretched to include removal of hood or deck lid ornamentation, a true restylist attempts to *totally* alter a car by relocating entire panels, removing panels altogether or otherwise changing the overall silhouette of the vehicle.



Raw metal and roughly welded seams mark extent of the frontal alterations. The hood has been raised and the fenders pulled outward leaving seam between the units which had to be filled. Formation of concave opening below hood was hardest part of whole job and took two weeks.

Builder Lundquist positions Hudson turret top over gutted Studebaker body and prepares cut lines with chalk. The steel top will be easily removable from the Stude body in a few moments.





Completion of front end illustrates new ideas in styling dreamed up by Lundquist. Guard-free bumper is only frontal chrome. Hidden opening beneath hood front and scoop under bumper duct air to the engine compartment. The panoramic windshield features lack of supporting frame.

Ted Lundquist, owner of the Lundquist Coachcraft Shop in the San Francisco area, is a man who has recently become noted for his radically different restyling treatments of American passenger cars. A Kaiser sedan that had the turret top completely, and permanently, removed was one of his attempts to be first brought to the public eye. Lesser modifications of the car included paneling in of the rear doors, a seemingly unsupported windshield and a rear end overhang greatly in excess of that designed by the manufacturer.

Ted's car created such a hit at local auto shows that it was no surprise to him when he received a phone call from

a Mr. Erickson asking whether the top could be completely removed from a '53 Studebaker hardtop. Ted's answer was in the affirmative so the car was delivered immediately to the shop — driven there directly from the dealer from whom it was purchased.

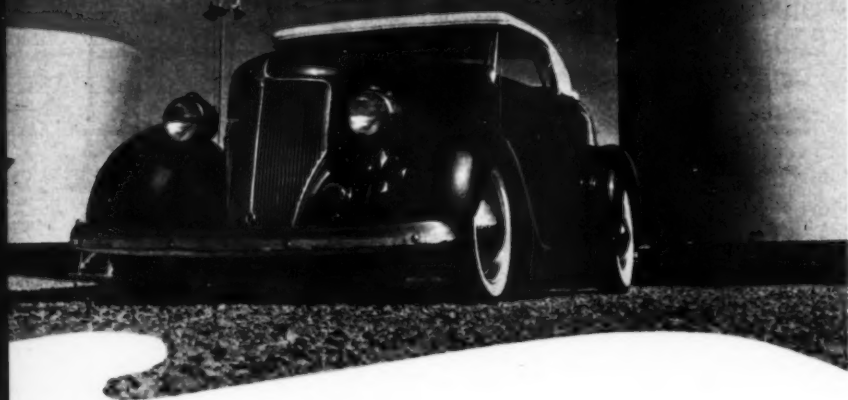
An interesting alteration to this particular car is in the widening of the front end and the raising of the hood. Widening was accomplished by moving the leading edges of the front fenders outward. The hood was pivoted upward approximately 2 inches on its hinges thus ridding the car of its sharply sloping hood line. The resulting gaps be-

(Continued on page 66)

Modern silhouette adds to futuristic styling of Erickson's convertible. Directional lights, over rear wheels, are easily visible from any angle. Doors, deck and hood are electrified.



Combining parts from a roadster with parts from a coupe, the owner of this little gem built himself a...



Half and Half

Photos by Moon

ONE OF the neatest little pieces of automotive transportation to be dreamed up by the Ford Motor Company was the still-popular '36 roadster. These well-designed, outstanding cars were apparently not built in sufficient numbers to satisfy the demand, for even while they enjoyed present-production sales records, it was almost impossible to walk into a Ford agency and drive one off of the showroom floor.

Because of their immediate popularity, the cars were kept long and driven hard by their original owners — two factors contributing greatly to a high mortality rate. Even though subsequent roadster production continued into 1938, the '36 was the envy of most teen-agers and demand exceeded availability.

Just prior to World War II, the few existing '36 roadsters enjoyed a new high in popularity for they had become, as it was once termed, the car of the year. They began to appear minus door handles, with chopped Carson tops, with set-in license plates and with varying degrees of chassis lowering — from slight to extremely radical. Customizing was in its infancy and had found a readily adaptable subject.

The war years played havoc with '36 Ford roadsters. Many were scrapped during the frantic buyers' rush for as late transportation as was available before new car sales restrictions set in. Some were abandoned as owners were sent off to war. Still more were driven practically to destruction between the

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Familiar head-on view of '36 Ford is enhanced by late bumper, bull nose on hood and low top.



Dropped front axle and large rear tires combine to make the Ford sit at a rakish angle.



Rear of body was once tail of a coupe. Notice '39 Ford taillights and clean rear body panel.



'36 coupe hood panels & front fenders matched the roadster cowl without need for any rework.

years 1941 and 1945. In short, few reliable, solid '36's remained when post war cars put in their first appearance. Though to this day they still remain high on the popularity list, it is only rarely that one in what can be called "exceptional" condition is seen.

Curt Alexander had long wanted a '36 roadster. The longer he looked for one the more obvious it became that none were to be had — outside of those rusting away in junk yards awaiting the inevitable fate of providing fodder for a scrap steel plant. The longer he searched, the more he realized he would have to settle for a junker or go without. At least that's the way it seemed until a sudden thought struck him.

Couldn't the better parts of a roadster

and a coupe be joined in some way so that from all outward appearances the finished car would resemble the former? Why not indeed. During Curt's search for the car of his dreams he had run across some badly dented, rusted bodies. Some of these, he recalled, had reasonably good body sections. Back-tracking, he turned up several cowl sections, an assortment of doors, and various remnants of windshields, etc. Gathering the best of the parts together Curt trucked the conglomeration home and set out once again — this time in search of a coupe, another non-too-plentiful item. One was finally found, however, and so the job of wedding the various components into a finished product was begun.

Curt stripped the coupe right down



Alternate strips of red and white upholstery form weird pattern to the roadster's interior.

to the bare frame rails. When the task of cleaning the chassis components and replacing such bearings and bushings as were deemed unsatisfactory, was concluded, a roadster cowl was aligned on the frame and bolted securely down.

A cutting torch rid the coupe body of its top, cowl and most of the steel floor section. The remaining rear body shell was positioned temporarily in proper position on the frame and the roadster doors were fitted. Curt was a bit worried at this point, worried whether the roadster and coupe body sides had the same contours. Surprisingly enough, the doors exactly matched the shape and lines of the coupe's quarter panels. Careful measurement and a bit of juggling set things in precise order and

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Right at home on highways or at drag events, the roadster roared through $\frac{1}{4}$ mile at 85 mph.



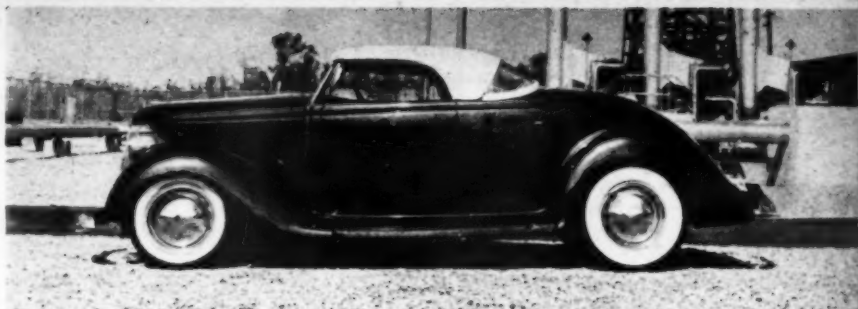
Wrap-around, panoramic type padded top does not fold, comes completely off for easy storage.

bolts strategically positioned held the components in place on the frame. The floor sections were welded and *presto!* — the car had become a roadster.

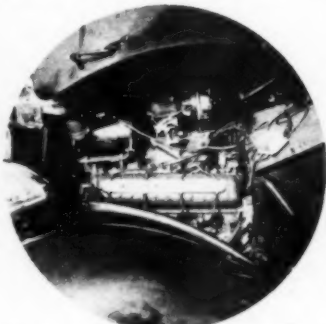
The front fenders, hood sections, running boards and grille fitted the roadster body perfectly. No relocating of bolt holes, braces or inner panels was necessary thus the age old question of whether the front ends from the different models were interchangeable was answered once and for all.

Close scrutiny of this car will reveal that the cockpit opening is a bit larger than that of a stock '36 roadster. This is due to the removal of the coupe's top at the point where it joins the rear body panels. However, with the Gaylord panoramic top in position, this effect is

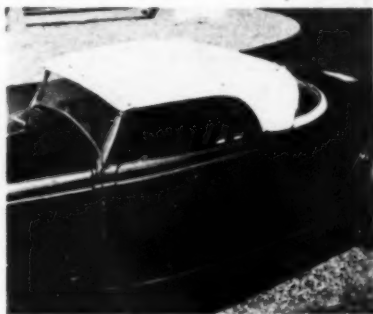
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Historic lines of Ford's '36 roadster are fast disappearing from the roads. Limited production 18 years ago leaves few cars of this model for restoration. This car was once a battered coupe.



Oldsmobile ohv V8 engine rests easily in snug compartment. Transmission is standard '36 Ford.



Small white top sets off rich metallic maroon. Door handles gone, access is attained by button.

scarcely noticeable and the completed car would probably fool even Henry.

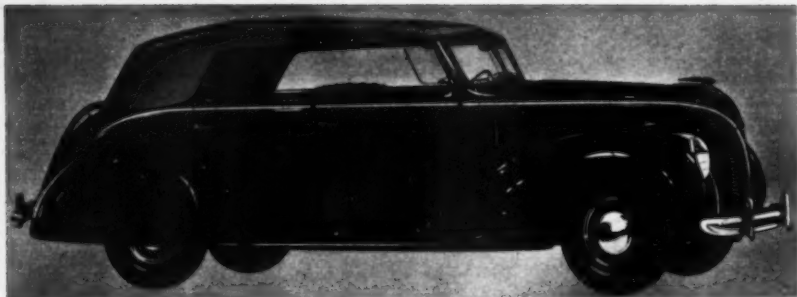
Bill's Body Shop, in Fullerton, Calif., responsible for much of the finish metal work on the car, is a *complete* shop even down to a tow truck used for hauling customers' cars that refuse to budge, for one reason or another, under their own power. The shop was once called upon to tow in an insurance company "total"—a '50 Oldsmobile that had been badly mangled in a mixup with an immovable object. Curt took one look at the Olds, called the insurance company on the nearest phone, and was soon on the receiving end of the fairly new ohv V8. Out came a tired but faithful '36 engine and in went the 303 cubic inch mill, the job being made possible

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through the use of a Cook adapter housing. Though the engine remains in its stock state, the little car recently blasted through a quarter mile strip at 85.65 mph. Because this car is set up to provide reliable, daily transportation, that's really stormin'.

The car was brought up to date with the addition of a multi-coat, metallic maroon paint job. Curt reports, "It's so deep appearing that it looks like a swimming pool full of maroon water." Interior outfitting was left up to Bob MacDonald who upholstered the little roadster with red and white Naugahyde.

Curt Alexander thus became the owner of a really rare '36 roadster—which isn't actually that at all. It's a hybrid, a Half and Half to be exact. ●



Whatsit



Some people say our "Whatsit?"s are too easy, some say they're too hard. How to keep everybody happy at the same time presents a real problem.

By way of solution, here is a car we would like you to identify. It isn't too difficult, while at the same time it's no cinch, either — or is it? We'll leave it up to you.

Five one year subscriptions await our readers for identifying the mystery car — one of them could be yours if you act promptly.

The rules are simple.

Address your cards or letters in care of "Whatsit?" and *don't* include any mail intended for the other regular columns in R & C.

Be sure your name and address is plainly written on your card or letter.

The deadline for this month's query is midnight, October 31st, 1954. The correct answer and the names of the five winners, selected at random from among those naming the year, make and model of the car above, will appear in the January issue, on sale December 1st.

To determine just how closely our readers scan the pages of R & C, we asked four questions in the July "Whatsit?", all of which had been answered within the past few issues. A bit of

confusion arose over two of the questions and for this we can only say that some of the contestants for this contest should have read more closely. To add insult to injury, the Air Force claims a new Land Speed Record with their rocket sled (see Editorial, Sept. '54). However, the sled run had not been made public at the time the questions were compiled, so we will stick by our guns and discard those letters whose senders had put the record at 421. Here are the questions, and the correct answers, less the tenths and hundredths of a mile an hour in order to qualify more "Whatsit?" responses.

1. *What is the fastest speed to date to be reached at the end of a quarter mile drag strip?*

The answer to this is, naturally, Don Yates in the Yates-Mikkelsen dragster who turned up 144 mph a few months ago.

2. *What is the fastest speed ever attained officially by an American car?*

At the Bonneville Salt Flats during the 1953 week-long speed fest, the Kenz Streamliner with Willie Young at the helm turned in a top one-way run of 255 mph.

3. *What is the present Land Speed Record?*

The answer, at the time the question was asked, was 394 mph, the average of two runs by John Cobb set in 1947.

4. *What is the fastest speed ever attained by man in an automobile?*

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THE CALL OF THE RILED...

Among the many problems that confront the Editors of ROD & CUSTOM, is one that crops up regularly every time a new issue rolls off the press. It concerns the names and places behind a particular car we have featured. It seems that we often leave out someone's name and that someone either calls, telegraphs or writes to say that a notice should be placed in the next issue for all to see.

When a ROD & CUSTOM writer is sent out to accumulate all the information that he can about a particular Rod or a Custom, he generally comes back with a list of names as long as your arm and with a list of modifications to the car even longer. Space, and ethics, do not permit us to include all such data in the story—rather, we try to list only the more important phases of construction and only those people who, in more than just a *small* way, contributed to the construction of the car.

A typical irate note might read like this; "I put the air in the right front tire of so-and-so's roadster, why wasn't my name listed?" Or, "You said that John Doe took the chrome off of so-and-so's custom. Actually I took the chrome off, all John Doe did was fill in the clip holes!"

Though we dislike greatly to step inadvertently on someone's toes, it is easy
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to see that name mentioning could easily get completely out of hand. (Fool's names... etc!)

A second problem that we are continually running up against is the true facts concerning a certain car. For a hypothetical case, let's say that our friend John Doe lowered the front of a certain custom. Later on the owner found that the springs had been heated and so eventually broke. Another shop may have had to correct the fault by re-lowering the car the right way and presented the unhappy enthusiast with a bill for the trouble. Naturally, the owner doesn't want to mention the name of the first *lowerer* for a reader might just take a car to him for the same treatment—and be similarly mistreated.

Of course, some guys just like to take all the credit, regardless. They tell us that *they* did this and that to *their* car without any help whatsoever. In view of certain circumstances we must take the enthusiast's word for it, having no other alternative. Therefore, we find it best, from time to time, to reprint the following statement:

Despite our concerted attempts to gather only factual data from the contributors to ROD & CUSTOM Magazine time remains an important element limiting us in the lengths to which we

(Continued on page 65)

Photos by G. Barris



FIRE POWERING

THE DEUCE

or,

How to turn 109 in the quarter mile.

HAROLD AND Spud Meth, of Sacramento, California's capital city, had a desire for a little car with a big engine. Their '32 Ford roadster was nice, no doubt about it, but even though it was powered by a greatly reworked, big breathing Merc., (that stormed the car through the Bonneville mile at a blistering 133.19) they felt that even additional power could be obtained, without the sacrifice of reliability, by the installation of one of the new ohv V8's.

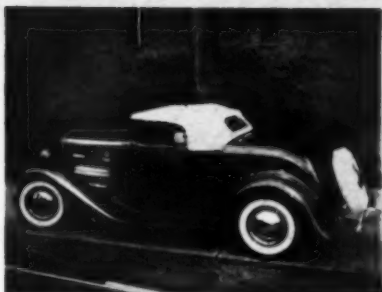
Without further ado, they unearthed a king-size '53 Chrysler engine and commenced measuring and figuring to see if such a conversion was within the realm of possibility without tremendous amounts of rework. Nothing (within reason, of course) is impossible, so with this belief fixed firmly in their minds, they began the chore by removing the Mercury engine.

To simplify the project as much as possible, the brothers stripped the fenders, hood, grille, etc., from their car thus laying the frame rails bare back to the firewall. Careful measurement assured them of a precision fit between engine components and body parts without alterations to the latter which would have meant additional expense. Well and good!

The engine, before being mounted in the chassis, was fitted with a LeBlanc adapter so it could be united to the '41 Ford transmission presently in the car.

The front engine mounts presented a problem, as they generally do in cases of this type, so the two brothers came up with a solution which, as far as we are able to determine, is the first of its type. As any Chrysler enthusiast will tell you, the big ohv V8 utilizes two engine mounts, one located on each side approximately midway between the front crank pulley and the bell housing. To mount this engine in a car like a '32 Ford, it becomes necessary to fabricate mounts which can be joined to the side frame rails. This is generally difficult to do and requires more than a little knowledge of stresses and welding know-

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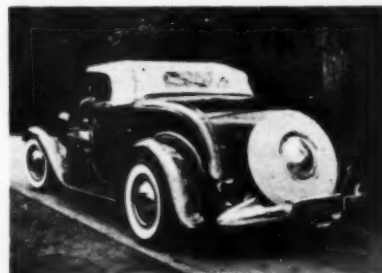


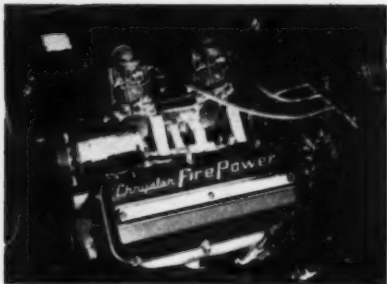
White top, spare cover and tires balance the metallic green lacquer job. The side panel-less engine compartment provides the spectators with visual proof of the car's amazing performance.



Three-way combination of '32 roadster and coupe windshield frames plus much hand work provides folding glass for speed runs. Height of top has been reduced to roughly 3 inches below stock.

The dropped front axle and large rear rubber gives roadster rakish angle of attack. Front and rear bumpers are '40 Olds narrowed at their centers to fit the narrower street rod.





Modified '53 Chrysler ohv V8 provides the light car with a much-improved power-to-weight ratio over former Mercury flathead engine. The fuel log was handmade, then chromed for appearance.



Reflections in lacquer paint are indication of careful workmanship. Original taillight, plated for appearance, no longer carries license plate.

Frenched door hinges are fast becoming a street rod fad, marking limits of extreme custom work.



how to make mounts that are both practical and safe. To get around this problem, the Meths availed themselves of the front engine plate from a Chrysler V8 intended for marine use and factory-altered for that reason. The new plate, though it has the same bolt pattern and general shape as the passenger car item, includes a center-type engine mount — much the same as used by Oldsmobile.

With this item discovered, purchased and installed, it was no trouble at all to secure the engine to the front Ford crossmember. And before we're swamped with letters from Chrysler-conversion enthusiasts, let it be known that the marine engine plate may be obtained from Chrysler's parts division or probably through large boat manufacturers.

The water pump used on the engine was pirated from a Chevrolet while the generator formerly sat astride the Mercury engine.

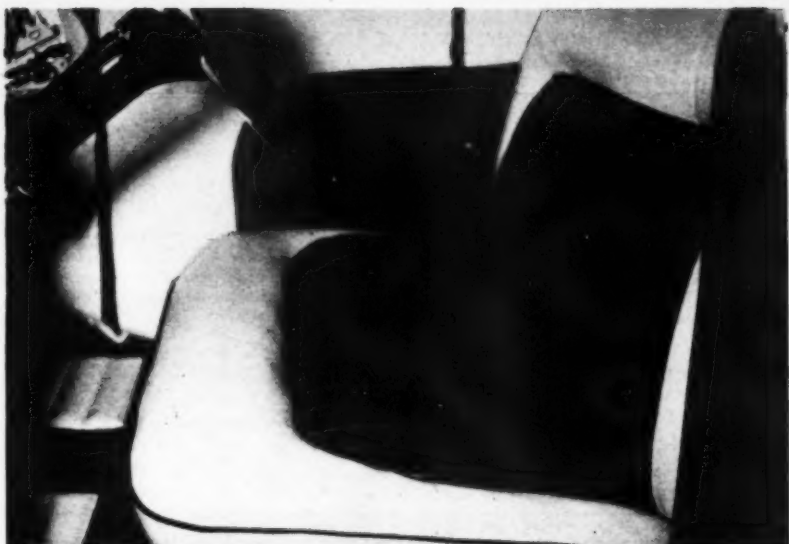
With the car back in running condition, the fenders, grille assembly, etc., were replaced. The large rocker covers protruded from the space formerly covered by the hood side panels so a new set is being built which will incorporate a bubble for clearance of these rather necessary items.

Taken to the drags at the nearby Kingdon Air Strip, the little roadster breezed through the quarter mile traps at a comfortable 109.76 mph.

The upholstery work was given over to Jim Sanders of Sacramento's B & M Auto Upholstery who did the job in fine shape using green and antique white Naugahyde which is both pleated and rolled. The craftsman-like interior theme was even carried over to the trunk compartment where pockets were added for the storage of small hand tools.

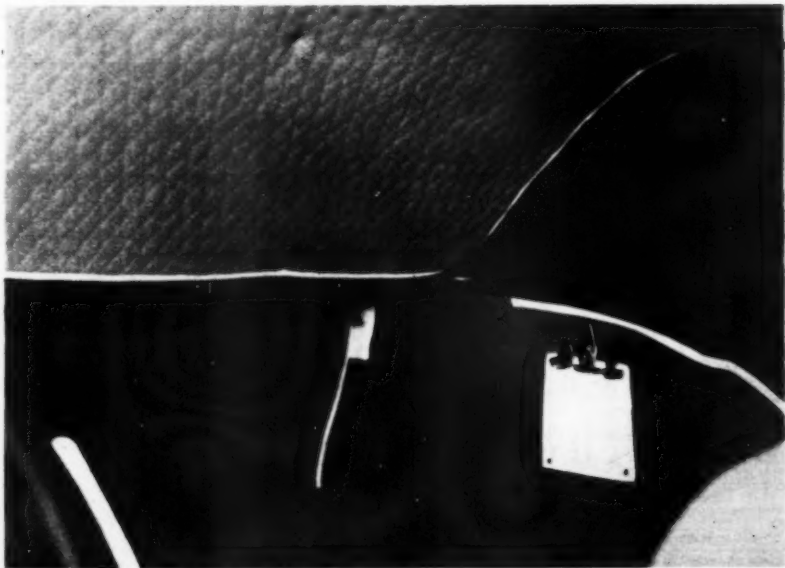
Now that the Cypress Green street rod has a far bigger engine to give it even more snap than it had when equipped with the Merc flathead, the boys will probably return to Utah's Salt Flats, during the week-long time trials, to see how their bomb stacks up against the others. *More power to them.* ●

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The pleated and rolled, green and antique white Naugahyde upholstery brings interior to modern styling tastes. Upholstery can add as much for a roadster as paint. Column shift is from '41 Ford.

Upholstering treatment, carried over to trunk compartment, includes pocket for hand tools. Very few owners of really hot machines like this one go to such extremes but it helps appearance.



TECHNICAL TIPS

TURN AROUND

While looking over my back issues of R & C I noticed an article in the November '53 issue concerning a belly-tank lakester. You say it has a Chevrolet engine yet the intake manifold and carburetors are on one side of this engine and the exhaust headers on the other. Every Chevrolet I have ever seen has had the intake and exhaust manifolds on the same side. What gives? Also, Chevrolet uses only four exhaust outlets and this engine has six.

Buddy Hinze Temple, Texas

• *The Wayne equipment used by the builder of the lakester is the cause of the confusion. Wayne heads route the exhaust, through six ports instead of four, out of the right side. Carburetion is supplied the engine through the left side of the head.* Tech. Ed.

ADAPTER PLATE

Where can I get an adapter plate, if one is necessary, so that I may install an Olds V8 engine in my '48 Pontiac? The car has a Hydra-Matic transmission and I wish to retain this feature.

Robert Bagley Dubuque, Iowa

• *The Pontiac bell housing uses the same bolt pattern as the Oldsmobile. Therefore, no adapter plate is required for the installation.* Tech. Ed.

DE SOTO-FORD

I am building a '34 Ford coupe and I would like to install a '53 DeSoto V8 in it. I have everything I need, the frame and body of the car are finished but I can't find an adapter plate for the conversion. Can you help me?

Bob Baker Oklahoma City, Okla.

• *Try Cook's Machine Works at 4845 Telegraph Rd., East Los Angeles.*

Tech. Ed.

CAM QUERY

I have been a steady reader of R & C for a long time. At last I have a question for your Technical Tips dept.

I am going to hop up the engine of my '41 Ford V8 a little. Will I have to change my valves or valve springs when I install a $\frac{3}{4}$ cam?

Bob Moore

Chicago, Ill.

• *Not necessarily. See Accessory Installation in the August '54 issue concerning cam installation.* Tech. Ed.

HORSEPOWER AND DISPLACEMENT

I am rebuilding a '46 Ford V8 to be put in my '40 Ford coupe.

The engine has been bored .060" over-size and fitted with proper pistons. Connecting rods and bearings are new along with a $\frac{3}{4}$ cam, new valves and tappets. Externally, Edelbrock heads and dual manifold fitted with Stromberg 97's have been added.

My problem is: how much horsepower and how much displacement will I have? If you could give me the formula for these two problems I would appreciate it very much.

Edward Rosenberg Philadelphia, Pa.

• *Horsepower cannot be accurately calculated on paper with the only known factors being bore, stroke, etc. Torque must be known to calculate horsepower and vice versa. Displacement can be determined by any one of several methods, one of which is as follows: Volume = $(\pi R^2) \times \text{stroke} \times \text{cylinders}$.* Tech. Ed.

EARLY CHEVYS

Can you tell me if Chevrolet ever made a three window coupe with a six cylinder engine back in the early '30's? Harry McFarland El Cerrito, Calif.

• Yes.

Tech. Ed.

(Continued on page 62)

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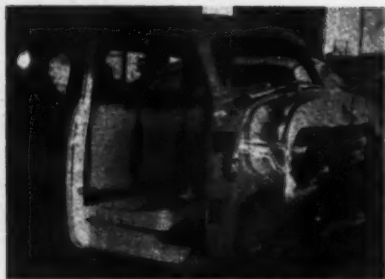
SECTIONING the pickup

CUSTOM BODY shops are blessed with a seasonal business. In some cases, that's good; in others, bad. In our case, it's the latter.

Seems that Sam's Auto Body Shop is enjoying such a great influx of work that our half-sectioned pickup was necessarily pushed outside to await the shop's free time. Anyone who has patiently waited for his car to emerge from a customizer's going-over well knows that delays nearly always prevail so they must content themselves by forcing their minds to roam elsewhere. This would not do with the rolling laboratory, for here was not a case of a single person awaiting completion of a job, but thousands — our many readers. The only solution was to journey elsewhere in

search of a reliable body shop that would be willing to turn all hands loose on the project, accepting no other work until the sectioning job was brought up to date in time for the magazine deadline — a highly rigid, inflexible time.

It wasn't until we pulled up in front of Burbank's Valley Custom Shop, with the cut up pickup trailing along behind, that we received a genuinely gracious greeting — until co-owners Clay Jensen and Neil Emory found out just what we wanted. Looks of doubt crossed their faces as we outlined our problems but at last they reluctantly agreed to tackle the guinea pig after first scanning their appointment sheet and explaining to waiting customers the fix we were in. Needless to say, we are deeply



Delivered to Valley Custom Shop after the panel sections, five inches wide, had been cut out, R & C's Chevy pickup truck is ready to have its vertical supporting posts cut. Lines were scribed, then a hacksaw brought into action. Cuts were made at widest points of the body.



Two men support weight of top section as the final cut is made in rear door post. The five inch width of all cuts was rechecked before final post was cut, so that deviations from accurate lines could be spotted and brought out to proper size with a body disc grinder.

Down it goes! Though the body has been dropped at last, hardest part of job is yet to come — that of finishing off the metal work. The door posts were parallel so no stretching of the body was necessary. Highest part of the top now stands a scant 4' 9" above ground level.



grateful to Valley Custom, and its customers, and Sam Gates reports that he is very glad the truck ended up in such capable hands. Again, thanks to Clay and Neil and their Valley Custom Shop without whom we would have been forced to go to press without... **SECTIONING THE PICKUP... PART II.**

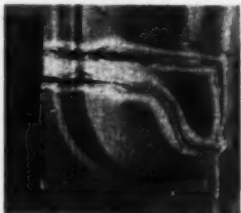
Our pickup arrived at Valley Custom Shop with large, roughly rectangular sections missing from the doors, cowl sides and rear body sections. Sam, you may remember, had marked and cut the body, leaving the upper structure supported only by the four door posts. The panel sections had been removed with an air-operated chisel but the door posts required precision-like hacksawing. Neil and Clay, the co-owners of the shop, began by checking the five-inch wide cuts and, satisfied with Sam's work, set to the task of scribing the posts.

The door posts are among the more critical body supports, for with improper alignment the whole sectioning job could be lost. It matters little, at this stage, if the expansive body panels do not exactly align or if slight gaps appear here and there, they can be fixed as we shall see, but the door posts — that's a different story. The posts were scribed with two lines at, or as near to as possible, their vertical midsections — precisely five inches apart. Then a hacksaw was used to sever each post at the two locations, the piece eliminated being left in its position temporarily to support the upper body while the remainder of the cuts were being made.

The "Great Drop" required the services of three people — two to hold the upper body structure while the third knocked out the intermediate post segments. It was with great awe that we watched the halves of the body brought together. Mixed emotions were felt — is the truck going to be *too* low, or not low enough? — will it be possible to sit comfortably in the extremely low cab? (Chopping and sectioning combined to reduce the body height by 8½ inches — try that on your brother!)

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SPECIAL ASSIGNMENT



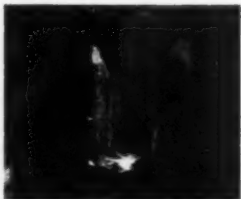
Right side of cowl before dropping upper body section. Upper opening marks removal of louvered area. Small opening below is sectioning cut. Note torch cuts through cowl to allow body top to drop and overlap. Yet to come is a cut between the two rear openings.



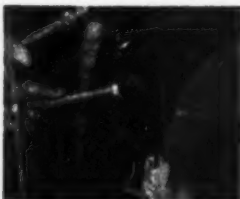
First step of repair to sectioned cowl side is the welding of the forward door post. Once anchored here, upper part of body will not distort when work is turned to thinner panels. Note that smaller opening (see first photo) has disappeared due to drop of upper body.



The sectioning cut had to go above the fender line, yet jog around the hood hinge holes. Here Valley Custom's Neil Emory trims the excess metal from the location of the rear hood corner on body. Notice that the firewall has been partially removed to be replaced later.



A small section of the firewall containing some of the critical hood hinge bolts has been dropped into gap provided in lower part of firewall. These sections are now being welded together so work can progress to cowl side. New firewall will conform to rear of engine.

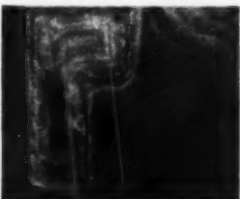


Neil uses the neat trick of pounding one hammer upon another to bend the overlap of body metal to fill the gap between the two parts of the body. The sections were first heated with the torch to make shaping easier. Gaps up to $\frac{1}{8}$ " in width can be filled.

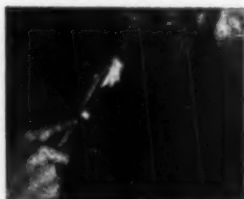


Co-owner Clay Jensen welds the adjoining pieces of the cowl side after they have been brought together. All of the inner structural segments of the cowl were also welded solidly to prevent squeaks sometimes resulting when car traverses bump or rutted roads.

Oddly shaped hole caused by removal of cowl's louvered section is filled with a piece of body metal cut to the proper size. A fairly precise fit is required to eliminate needless rework later on. Neil here does the honors.



Shop co-owner Clay Jensen first tack welds the filler panel into position, then goes around it again with solid bead of weld. The hopeless looking mess the first photo begins to shape up, proving care can overcome most obstacles.



With all of the joints and seams welded solidly into position, it's merely a matter of finish metal work to bring the cowl section up to date. Finishing must meet R & C's rigid specifications of "load only where necessary".



Clay uses body grinder with #16 disc to clean the section of burned paint and weld scale. The grinder was not used to smooth the metal work.



Finishing touches are put on the cowl section with a Vixen body file. The completed job took 1½ hours, can be seen in photo of finished cab.

The preliminary measuring and figuring worked out as planned. All portions of the body halves met and it was evident that the remainder of the job would require little more than straight body work — without, of course, an overabundance of lead.

The mating edges of the body panels were temporarily overlooked as the door posts were aligned and tackwelded — it's far easier to push the thin panels back and forth than to shift the heavier vertical structure.

The cowl sides presented a problem — probably the most difficult of the whole job. The cut was made (see photos) above the fender line. This would have been relatively easy had it not been for the hood hinge bolt holes. Hood hinges are a critical bit of engineering and to upset the location of these necessary evils would have meant many hours of rework to make them operable once again. Thus, the sectioning cut had to jog around the holes provided in the cowl for the hinges. A series of photos shows how this difficult-looking problem was overcome by Valley Custom in short order.

Once the door posts were welded, the various body panels came in for their share of work. Since the body is reasonably vertical fore and aft and since the cab is free from complicated compound curves, the panels butted together quite accurately. Tack welds here and there tied the upper and lower halves to-

gether, then the seams were welded solidly at all points.

The doors were cut in much the same way as had the body. The rectangular sections had been removed from the doors by bodyman Gates, but severing the door edges was done by Clay and Neil. Like the body posts, the door edges were carefully cut with a hacksaw — with the doors off the body. The upper and lower halves were then re-positioned, each fastened to its respective hinge, and the butted edges tack welded until final fitting was accomplished. The accompanying photos show that the tops of the doors are separated from the top's drip rail by a rather large gap. However, this will be taken care of in the near future as tentative plans call for considerable rework to this portion of the body.

Once the door halves had been welded, they were fitted in a precision-like manner to the body by hinge adjustment.

As you may or may not know, the inner door panels of Chevy pickup trucks are solid except for one small inspection panel that allows access to the lower door hinge and the window mechanism. Since the existing hole was far too small, and not conveniently located, another, larger hole was cut with the torch. This hole will permit the use of a hand-held dolly behind the sectioning seam and will, later, provide access to the electric window lifts that we plan to install. Since the inner door panels

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will be covered entirely with upholstery, instead of being left primarily bare as the manufacturer intended, a rough cut was made.

The vertical portion of the firewall, as the photos show, was removed almost in entirety. The stock panel did not even come close to properly fitting the Olds engine and a new one will be hammered from sheet metal, so to make the sectioning job as easy as possible the elimination of this panel was in order.

Hammer-welding is the only way in which we would allow the sectioning welds to be completed — and Valley Custom was quick to agree. Sectioning cases are on record where the edges of the cut panels were overlapped and bolts used to join the panels, then chrome stripping added to cover the bolt heads. This we frown upon — and the reasons are quite obvious. A few bodymen, in an attempt to make a sectioning job as easy as possible, left the roughly welded, butted edges as they were, merely hiding their sins with a coating of lead. This is not for us, either! Hammer-welding is the method whereby a welded seam is *forged* into the surrounding metal. The joint actually becomes stronger than if the rough welds were ground away and no amount of flexing or bending will cause the joint to halve itself or to even crack. Here's how Valley Custom hammer-welded the sectioning seams of R & C's rolling laboratory.

The welding torch, fitted with a #4 tip, was fired up and the heat range adjusted so that the cone of the flame extended roughly $\frac{1}{4}$ inch from the tip. The cone of the flame was then held approximately another $\frac{1}{4}$ inch from the area to be forged which, in this case, was the roughly welded seam extending back from one of the rear door posts. An area an inch or so in length was heated by passing the flame slowly back and forth over the welded seam until it glowed cherry red — but not hot enough to burn away the metal. An all-purpose dolly was quickly positioned behind the heated section and brought into contact

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Hammer-welding was done where possible so to minimize the amount of lead used. Forging, as it is also called, is accomplished as follows: A section of weld about an inch long is heated by moving the torch back and forth until bright red glow is visible. Pick up the hammer and...



...briskly pound the area at the same time holding all-purpose dolly immediately behind. The welded section will appear to flow into the surrounding area. Continue pounding until the glow has disappeared. This action should be continued until the end of seam is reached.

Contrast between the forged and roughly welded seam areas is shown in this photo taken midway in job. Note that seam has apparently vanished and the sections appear as one. After forging, the next step, explained in text, is the removal of burned paint and scale with body grinder.





Fit of door is checked against rear section of body before finishing. Body section has been hammer-welded, roughed to shape while door is still buckled from heat during the welding. Door, after alignment with the front and rear posts, will be removed from body and finished.



Cowl here has been completed and surfacer used to prevent formation of rust. Yet to be done are the door and rear body panel. Gap between door top and roof will soon be eliminated.

Sectioning of the body proper completed! The body sections requiring rework during project appear dark in photo since different shade of primer paint was used than that on the body.



with the metal. A body hammer then was welded smartly back and forth over the seam until the seam disappeared and until the hot spot had cooled appreciably. The next adjoining inch-long section of welded seam was treated in the same manner until the entire cut line was visible only through the discoloration of the surrounding metal.

The larger humps and hollows in the area around the seam, which always occur whenever great heat is applied to metal, were hammered out during the hammer-welding process, but the final smoothing step was left until last.

A body grinder, fitted with a #16 disc, was run back and forth over the general area to clean it of the burned paint and scale that invariably accompany torch work. The grinder was *not* used to smooth the metal prior to painting! The edge of a grinder disc is very flexible so has a tendency to drop into the unseen valleys and hollows thus making them stand out like sore thumbs after painting has been completed. Instead, warns Valley Custom Shop, a Vixen body file should be used. This is a long, flat, cross-tooth file especially made for filing sheet metal. Its flatness is the reason for its use. As it is drawn back and forth across the metal, the high spots become outstanding from the surrounding metal due to the cutting action of the file's teeth. The low spots are then tapped from behind with a pick hammer to elevate them to the same extent as the higher areas. (Should the hollows be the proper elevation of the metal, determined by feel, the *higher* spots should be tapped *downward* with a pick hammer.) More filing will reveal whether the picking was properly. Continuing in the above manner, all of the welded seams of R & C's pickup truck disappeared and became bright, shiny steel.

Lead, as we have pointed out many times in the past, has a place on a car — take a look at a late model stocker, the thing's probably covered with it. How-

(Continued on page 63)

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WHY DOES an automobile have springs? Unbelievable as it may sound, asked this question, more than 99% of the people will answer it wrongly. The common reply is usually something to the effect that they make a car ride more smoothly, but this effect is actually an indirect result.

Concurrent with the foregoing misconception is the belief that an automobile must be heavy to provide a soft ride. To make a car heavy in order to produce a "feather bed ride", by weight alone is not the answer.

A Cadillac is usually looked upon as being tops in riding comfort because it is heavier. It is thought that the great weight keeps the car from being affected by irregularities in the road surface. Weight has something to do with ride but not in the manner generally pictured. To explode the popular weight theory, all that we need to do is fit the Cadillac with lead wheels weighing 1,000 pounds apiece. With the tires inflated to a pressure commensurate with the added weight, our smooth riding Cadillac will now compare with a Model T Ford.

If adding weight to the wheels made the car ride like Henry's pride and joy, it should be obvious that there is more involved than the simple addition of weight. Basically, the springs are incapable of making the heavier wheels follow the irregularities of the pavement. The springs are supposed to push

the wheels against the pavement at all times. The fact that the springs support the weight of the car is incidental; for after all the car would be supported if the wheels were fastened solidly to the frame. If the soft springs won't push the 1,000 pound wheels against the pavement, it might be suggested that stiffer springs be employed. This will only make a bad matter worse, because the springs will have too light a "back stop." In pushing against the wheels they naturally must react against the frame and body of the car.

To more easily understand the reaction that takes place we will use a simple analogy. If we take two identical rubber balls and roll them toward each other at equal speeds, when they collide, they will bounce back an equal distance. If we increase the size of one ball, so that it is twice as heavy as the other, it will only bounce $\frac{1}{2}$ as far as the lighter ball. It is this ratio of one mass to the other that determines in great measure the riding qualities of an automobile.

The ideal ride is usually pictured as being so smooth that the car travels in a straight line as if the road was a mirror. Being that no road is so smooth, the springs must cause the wheels to follow the "hills and valleys" in the pavement so that the body is unaffected. A hill will force the wheel upward toward the body and a valley will require that the spring push the wheel down

into the depression, all the while keeping continuous contact with the pavement. The rapidity of this action is dependent in a great degree on the lightness of wheels, axles and kindred running gear that are unsprung. Light parts can change direction much faster than heavier ones because of less inertia. Light unsprung parts will bounce upward from a bump in the road much more easily than heavy ones and the spring can return them more rapidly. The greater the ratio between the sprung and the unsprung weight the greater the possibility of obtaining a smooth ride.

Applying the aforementioned principles to a car weighing one half as much as a Cadillac can produce a ride equal to or better than the alleged ultimate. The unsprung parts of the light car can be lightened so that the ratio between sprung and unsprung is the same or better than the heavy car. A change in springing will of course be necessary too if the desired effect is to be obtained. Due to the reduction in inertia caused by lessening the weight of the parts, less spring stiffness is required to cause the wheels to follow the contours of the pavement.

Various means, both practical and impractical, can be employed to reduce the weight of unsprung parts. If one is required to stay within the bounds of current U.S. designs, the only possible path is the use of lighter alloys and the popular practice of drilling lightening holes. Light alloys are very expensive and all out perforating for lightness is not what one could call a high production technique, so it is extremely doubtful that we may ever see forged aluminum rear end housings and perforated brake assemblies on low priced cars.

Large weight reductions on current designs should not be expected but sometime in the future we can expect changes in basic design. Although present front end assemblies have very little unsprung weight, the rear axle assembly is still ex-

tremely heavy. Perhaps at some future date we may see U.S. manufacturers apply the same basic principle to rear axles that they inaugurated in 1934 with independent front suspension. Independent rear suspensions would do a great deal toward reducing unsprung weight.

Through the use of independent rear suspensions it is possible to mount the heavy rear end gear assembly and brakes directly to the frame. Such a practice would reduce the unsprung weight at the rear of our automobiles so that it would be comparable to that of the front ends. With the differential and brakes on the frame, the wheels, axles and alignment linkage would be the only unsprung weight.

Outstanding evidence of the importance placed on reducing unsprung weight can be gotten by examining the chassis of one of the Lancia sport cars that won the 1953 pan American Road Race. Lancia engineers weren't satisfied with mere compromises, they even went to the extreme of mounting the front wheel brakes on the frame. Shafts and universal joints coupled the brakes to the wheels. If Lancia felt that it was worthwhile to go to such an extreme on the front end, it should be quite apparent that reducing unsprung weight both front and rear is quite desirable.

Before we leave the impression that independent rear suspension is the only way to reduce unsprung weight in the rear, we must point out that there is another very practical means, the DeDion type rear end. This type of suspension is very popular in Europe on both racing cars and sports cars and can even be found on a few American trucks.

The DeDion system is actually preferred to independent rear suspension by many designers because of reputedly better handling characteristics. The DeDion can actually be likened to an arrangement like the popular roadster front end with the radius rods mounted on the frame. The differential is mounted on the frame so shafts and universal joints couple it to the wheels.

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Some installations mount the brakes at the wheels and others mount them at the differential housing. Being that the relationship between the two rear wheels is maintained by a false or locating axle in the same manner as the roadster front end, the wheels always remain parallel to each other. As long as both of them are on the pavement, they remain vertical to the pavement. They do not have the bad tilt tendency of the Detroit independent front suspensions.

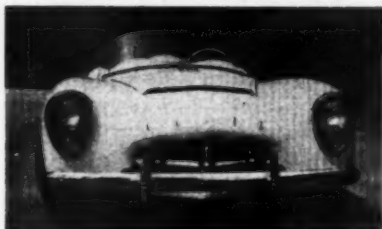
While we are on the subject of wheel tilt, the swing axle should be discussed. This arrangement has been made quite popular by the Volkswagen and Porsche in the past few years. A few hot rods, such as Tom Beatty's lakester, have employed the swing axle. Though simple and quite effective within limits, the swing axle has a bad tendency to tilt the wheels in a turn. When negotiating turns on soft dirt or clay this is not a disadvantage because both rear wheels lean like a motorcycle taking a turn. The angle has a tendency to pack the dirt into the tire treads thereby increasing traction. When negotiating a high speed turn with a swing axle on pavement its advantage is very limited. Up to a certain turning rate, the tires will "stick" to the pavement, but beyond that point a complete "washout" will take place. A change takes place with a swing axle when power application is changed. This makes it necessary that high speed turns be negotiated with power on to eliminate camber changes.

Another type of suspension that is well worth mentioning appears on the front ends of Volkswagen and Porsches. This type is the trailing arm, which is far superior to any of the Detroit arrangements inasmuch as wheel tilt is eliminated. The wheel spindle is supported between two parallel trailing arms of equal length. Upward and downward wheel travel has no effect on the tread of the automobile nor wheel camber. A very slight change in wheel base is the only apparent variation be-

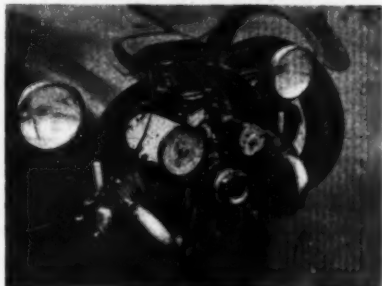
(Continued on page 61)

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WHATSIIT?

(Continued from page 44)

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NAVARRO

(Continued from page 59)

cause the spindle describes an arc in its travel.

Trailing arms have been used for rear suspension but are not as successful for racing as the DeDion. Although wheel tilt like that of the swing axle is not experienced with the trailing arm, even though both wheels are kept parallel to each other they do not remain perpendicular to the pavement in a high speed turn. Centrifugal force causes the car to lean to the outside of the turns which compresses the springs on the outside and extends the springs on the inside. This places one wheel high on the body and the other low, so we actually find that the wheels are leaning on the pavement. The best cornering ability on pavement is always obtained with a rear suspension that keeps both rear wheels perpendicular to the pavement because maximum tire surface always contacts the road surface. Actually one front wheel is sufficient to steer a car so tire adhesion isn't as important in front as in the rear.

Up to this point we have neglected to point out that a reduction in unsprung weight has a beneficial effect other than a smoother ride. Providing that the various other factors involved in obtaining tire adhesion are taken care of in a proper manner, reducing unsprung weight will make it possible to keep the wheels on the pavement at all times. Obviously, wheels that keep on the asphalt all the time instead of spending half of the time in the air are going to be less apt to skid in a turn. Lancia designers evidently had this in mind when they decided to mount the brakes on the frame, leaving only the wheel and axle unsprung.

Much has been written regarding various types of suspension and many words have been uttered in support of each enthusiast's favorite. In spite of strong beliefs in certain designs, none exist that can be called ideal. Every one has advantages and disadvantages. ●
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R-10

TECH. TIPS

(Continued from page 50)

HOW COME?

Issue: July '54 R & C.

Dept.: Tech. Tips

Page: 53

Question: "Engine Damage."

Comment on your answer: If dual exhausts don't decrease engine back pressure, how do they help breathing characteristics?

A. R. Pettyjohn

Dickinson, Texas

• The engine in question was a Chevrolet. The exhaust valve begins to open at 60° before bottom dead center. Thus, a great percentage of the exhaust gas has escaped before the piston begins to travel upward. What little gas does remain in the cylinder is forced out, then back pressure (a very small amount) begins to form in the exhaust head pipe. Back pressure does not rob the engine of power by creating a pressure on the piston causing it to "slow down" as many people erroneously believe. What dual exhausts will do is assist in creating a draft effect — much the same as a properly built chimney will give a better fire than one with a poorly designed stack.

Tech. Ed.

TRUCK ENGINE?

I have a 1940 Ford. The present engine is in poor shape and I have a chance to replace it with a '40 Ford ½ ton truck engine. What changes would have to be made to install this engine in my car?

John Casey Binghamton, New York

• No alterations would be necessary.

Tech. Ed.

DROPPED TRUCK AXLE

I am very interested in purchasing a dropped axle for a '51 Ford ½ ton pickup — similar to the "Pace Setting Pickup" in the July '54 issue of R & C. Where can I get one?

J. H. Z.

Dayton, Ohio

• The A & M Automotive Co. in nearby (to you) Trotwood, Ohio, should be able to supply you with the dropped axle.

Tech. Ed.

ROD AND CUSTOM, OCTOBER, 1954

SECTIONING

(Continued from page 56)

ever, when applied to a custom it should be used sparingly and applied correctly. Several areas on the pickup required leading — because they were backed up by reinforcing channels and double box sections of steel so that the use of a hammer and dolly was impossible.

After application, the lead was filed to the proper contour, washed down, then the bare sections of the truck were heavily primed. Sectioning — completed!

Building a custom car — or truck — in the manner of R & C's rolling laboratory has definite advantages. In our case, we have little except for a chassis with a completely gutted cab mounted thereon. No fenders to get in the way — no wires to catch fire from a welding spark — no glass to get broken. However, a broad hint can be taken from this as applied to a complete car — strip it! Similarly, though the pickup is admittedly much simpler to work on than a conventional passenger automobile, all of the problems encountered can be extended to meet those of the more complicated car.

All such details as would be encountered with a job of the magnitude as described during this two-part feature on sectioning, will be taken up at a later date. Such things as glass replacement, fender attaching and upholstery installment will be coming at you from forthcoming issues of ROD & CUSTOM. ●

In case you've missed any of the phases of work, here is an issue-by-issue rundown on what has taken place to date:

How To Install An Olds V8 in a Chevrolet.

Progress Report #1. Sept. '53.

Top Chopping The Right Way.

Progress Report #2. May and June '54.

How To Arch A Frame For Lowering.

Progress Report #3. July '54.

Building A Custom Dashboard.

Progress Report #4. August '54.

Floor Shift For Automatic Transmissions.

Progress Report #5. August '54.

Sectioning The Pickup — Part I.

Progress Report #6. Sept. '54.

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EDITORIAL

(Continued from page 5)

ideas on hand that disagree with some of the modifications already performed and we are considering rectifying these as soon as possible. If you think we should use cycle-type fenders that steer with the wheels or the extremely long fenders from a '54 Olds 98 Holiday Coupe, drop us a line - we'll be waiting to hear from you.

We welcome a new addition to our staff this month. He's none other than Bob Pendergast who has contributed material to ROD & CUSTOM in the past. Now he's with us permanently. The first of his regular features appears in this issue and concerns formation of a car club. According to our mail, car clubs are still needed and wanted throughout the country. Bob not only tells you why a car club is a good idea, but he cites a specific example telling how the particular group was founded, who was behind it and the results of its six-month-old formation. Not to be overlooked are the cars belonging to the members. All are customs - from radical to moderate. There's loads of good ideas for your car contained in the members' machinery, so take a peek at page 12. ●

CALL OF THE RILED

(Continued from page 45)

can go in our research. Therefore, we wish to go on record as saying that we will in no way be responsible for the accuracy of the information given us regarding cars and their modifications; names, dates and places surrounding the construction of such cars; or the necessary material gathered for the compilation of historical, technical or generally informative type of articles. We do not feel that our suppliers will knowingly misinform us, rather we are trying to protect ourselves from such misinformation as they may have mistakenly contributed to us. ●

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COACHCRAFT

(Continued from page 39)

tween the fenders and the hood were filled by adding a tapering strip of metal to the inner edges of each fender.

The grille presented no problem — the car doesn't have one! Air is ducted to the engine compartment by an enlarged scoop immediately behind, and below, the front bumper. Further alterations to the fenders included extending the area surrounding the headlights by 5 inches but leaving the bulb units recessed.

The unusual frontal treatment features two dished, hollow panels which serve to direct air up and into an opening hidden from sight beneath the hood.

Several cars donated odds and ends from which the rear bumper was assembled. Exhaust is routed through round openings in the base of each bumper tip ala Cadillac. The bomb-like projections housed in the area formerly occupied by the taillights include four triangular cutouts through which light from the taillamps is visible.

A trough was formed between the rear fenders and the quarter panels by molding half-sections of exhaust tubing. Almost directly over the rear wheels are odd-shaped pieces of red plastic which, when lighted, act as directional signals.

A new steel top, soon to be added, will consist primarily of a section cut from a Hudson turret top. The top will be removable so it can be stored out of the way whenever weather permits.

The GM-type, panoramic windshield, formed from Plexi-glass, has no end or top supporting frame. Support is given solely through the base mounting. Use of this windshield meant considerable rework to the leading edges of the doors, the cowl top and side and the dashboard.

Though drastic body revisions, as we pointed out earlier, are dangerous to questionable skill, the forethought and workmanship that went into Erickson's Studebaker paid off for the car is well-proportioned, has a balanced appearance but yet it's different — something that is difficult to attain with today's cars. ●

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